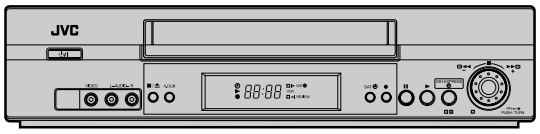
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-J691EU, HR-J693EU, HR-J694EU, HR-J696EK, HR-J794EU



Hi-Fi
SHOWVIEW DELUXE
VHS PAL SQPB

Regarding service information other than these sections, refer to the HR-J690EU/J695EK/J790EU service manual (No.82913). Also, be sure to note important safety precautions provided in the service manual.

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-J794EU.)*

GENERAL

Power requirement	:	AC 220 V – 240 V∿, 50 Hz/60 Hz
Power consumption		
Power on	:	15 W
Power off	:	4.0 W
Temperature		
Operating	:	5°C to 40°C
Storage	:	–20°C to 60°C
Operating position	:	Horizontal only
Dimensions (W x H x D)	:	400 mm x 94 mm x 270 mm
Weight	:	3.1 kg
Format	:	VHS PAL standard
Maximum recording time		
(SP)	:	240 min. with E-240 video cassette
(LP)	:	480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	:	PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields
Recording system	:	DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	:	45 dB
Horizontal resolution	:	250 lines
Frequency range		
Normal audio	:	70 Hz to 10,000 Hz
Hi-Fi audio	:	20 Hz to 20,000 Hz
Input/Output	:	21-pin SCART connectors: IN/OUT x 1, IN/DECODER x 1 RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1

TUNER/TIMER

TV channel storage capacity	:	99 positions (+AUX position)
Tuning system	:	Frequency synthesized tuner
Channel coverage		
VHF	:	47 MHz – 89 MHz/ 104 MHz – 300 MHz/ 302 MHz – 470 MHz
UHF	:	470 MHz – 862 MHz
Aerial output	:	UHF channels 22 – 69 (Adjustable)
Memory backup time	:	Approx. 10 min.

ACCESSORIES

Provided accessories	:	RF cable, Infrared remote control unit, "R6" battery x 2
Optional accessories	:	Satellite Controller RM-SD1

Specifications shown are for SP mode unless specified otherwise.
E. & O.E. Design and specifications subject to change without notice.

V15D1/D15

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No.82914
March 2002

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[HR-J691EU/J693EU/J694EU]
The following table indicate main different points between models HR-J690EU, HR-J691EU, HR-J693EU, and HR-J694EU.

ITEM \ MODEL	HR-J690EU	HR-J691EU	HR-J693EU	HR-J694EU
BODY COLOR	PURE SILVER	←	BLACK	PURE SILVER
DISPLAY WINDOW COLOR	METALLIC GRAY	METALLIC GREEN	BLACK	METALLIC BLUE
REMOTE CONTROLLER COLOR	LIGHT GRAY	←	BLACK	LIGHT GRAY

The following table indicate different parts number between models HR-J690EU, HR-J691EU, HR-J693EU, and HR-J694EU.

PACKING AND ACCESSORY ASSEMBLY<M1>

PACKING AND ACCESSORY ASSEMBLY<M1> is indicated on the parts list.

FINAL ASSEMBLY<M2>

⚠ REF NO.	ITEM \ MODEL	HR-J690EU	HR-J691EU	HR-J693EU	HR-J694EU
⚠501	FRONT PANEL ASSY	LP10434-001E	LP10434-003E	LP10434-002E	LP10434-013B
501A	CASSETTE DOOR	LP20961-022B	←	LP20961-025B	LP20961-022A
⚠502	TOP COVER	LP10013-051B	←	LP10013-061B	LP10013-051B
503	SCREW,X4,TOPCOVER(SIDE)	QYTDSF3010R	←	QYTDSF3010M	QYTDSF3010R

[HR-J696EK]
The following table indicate main different points between models HR-J695EK and HR-J696EK.

ITEM \ MODEL	HR-J695EK	HR-J696EK
BODY COLOR	PURE SILVER	BLACK
DISPLAY WINDOW COLOR	METALLIC GRAY	BLACK
REMOTE CONTROLLER COLOR	LIGHT GRAY	BLACK

The following table indicate different parts number between models HR-J695EK and HR-J696EK.

PACKING AND ACCESSORY ASSEMBLY<M1>

PACKING AND ACCESSORY ASSEMBLY<M1> is indicated on the parts list.

FINAL ASSEMBLY<M2>

⚠ REF NO.	ITEM \ MODEL	HR-J695EK	HR-J696EK
⚠501	FRONT PANEL ASSY	LP10434-004E	LP10434-005E
501A	CASSETTE DOOR	LP20961-022B	LP20961-025B
⚠502	TOP COVER	LP10013-051B	LP10013-061B
503	SCREW,X4,TOPCOVER	QYTDSF3010R	QYTDSF3010M

[HR-J794EU]
The following table indicate main different points between models HR-J790EU and HR-J794EU.

ITEM \ MODEL	HR-J790EU	HR-J794EU
DISPLAY WINDOW COLOR	METALLIC GRAY	METALLIC BLUE

The following table indicate different parts number between models HR-J790EU and HR-J794EU.

PACKING AND ACCESSORY ASSEMBLY<M1>

PACKING AND ACCESSORY ASSEMBLY<M1> is indicated on the parts list.

FINAL ASSEMBLY<M2>

⚠ REF NO.	ITEM \ MODEL	HR-J790EU	HR-J794EU
⚠501	FRONT PANEL ASSY	LP10427-006H	LP10427-023B

Note: Mark ← is same as left.

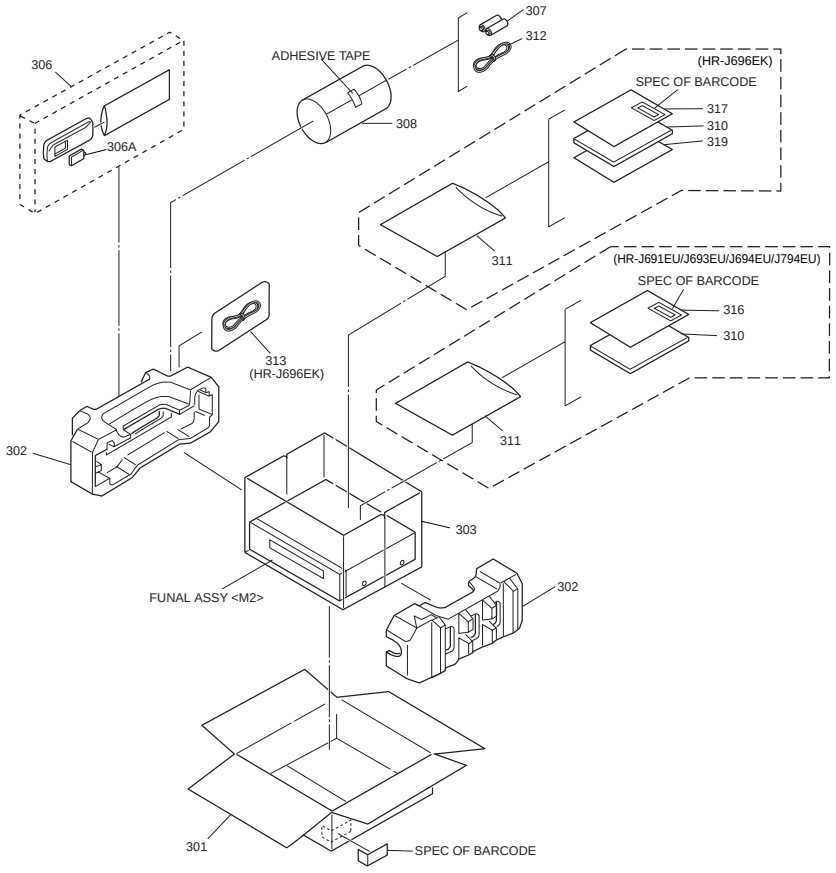
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.



#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
**********				
			PACKING AND ACCESSORY ASSEMBLY <M1>	
		301	LP30855-003A	PACKING CASE
		302	LP30909-001C	CUSHION ASSY
		303	PQM30021-93	POLY BAG
		306	LP20878-014A	REMOTE CONTROLLER,J691EU/J694EU/J794EU
			LP20878-015A	REMOTE CONTROLLER,J693EU/J696EK
		306A	LP40610-001A	COVER(BATTERY),J693EU/J696EK
			LP40610-003A	COVER(BATTERY),J691EU/J694EU/J794EU
		307	—	BATTERY,X2("R6"TYPE)
		308	QPC02202230P	POLY BAG
	⚠	310	LPT0627-001B	INST.BOOK(EN),J794EU
	⚠		LPT0627-002B	INST.BOOK(GE),J794EU
	⚠		LPT0627-003A	INST.BOOK(FR),J794EU
	⚠		LPT0627-004A	INST.BOOK(DU),J794EU
	⚠		LPT0627-005A	INST.BOOK(SP),J794EU
	⚠		LPT0627-006A	INST.BOOK(IT),J794EU
	⚠		LPT0627-007A	INST.BOOK(DA),J794EU
	⚠		LPT0627-008A	INST.BOOK(FI),J794EU
	⚠		LPT0627-009A	INST.BOOK(SW),J794EU
	⚠		LPT0627-010A	INST.BOOK(NO),J794EU
	⚠		LPT0627-011A	INST.BOOK(PT),J794EU

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	⚠		LPT0627-012A	INST.BOOK(GR),J794EU
	⚠		LPT0628-001A	INST.BOOK(EN),J691EU/J693EU/J694EU
	⚠		LPT0628-002A	INST.BOOK(GE),J691EU/J693EU/J694EU
	⚠		LPT0628-003A	INST.BOOK(FR),J691EU/J693EU/J694EU
	⚠		LPT0628-004A	INST.BOOK(DU),J691EU/J693EU/J694EU
	⚠		LPT0628-005A	INST.BOOK(SP),J691EU/J693EU/J694EU
	⚠		LPT0628-006A	INST.BOOK(IT),J691EU/J693EU/J694EU
	⚠		LPT0628-007A	INST.BOOK(DA),J691EU/J693EU/J694EU
	⚠		LPT0628-008A	INST.BOOK(FI),J691EU/J693EU/J694EU
	⚠		LPT0628-009A	INST.BOOK(SW),J691EU/J693EU/J694EU
	⚠		LPT0628-010A	INST.BOOK(NO),J691EU/J693EU/J694EU
	⚠		LPT0628-011A	INST.BOOK(PT),J691EU/J693EU/J694EU
	⚠		LPT0628-012A	INST.BOOK(GR),J691EU/J693EU/J694EU
	⚠		LPT0628-013A	INST.BOOK(CZ),J691EU/J693EU
	⚠		LPT0628-014A	INST.BOOK(PO),J691EU/J693EU
	⚠		LPT0628-015A	INST.BOOK(HU),J691EU/J693EU
	⚠		LPT0630-001A	INST.BOOK(EN),J696EK
		311	QPC02503530P	POLY BAG
		312	PEAC0300-02	RF CABLE
		313	QAL0095-005	LED CABLE ASSY,J696EK
		316	BT-54013-2	WARRANTY CARD,J691EU/J693EU/J694EU/J794EU
		317	BT-54008-2	GUARANTY CARD,J696EK
		319	LYT0194-001B	Q.CARD(JUK),J696EK

[redacted]

JVC

VICTOR COMPANY OF JAPAN, LIMITED
VIDEO DIVISION

S40894

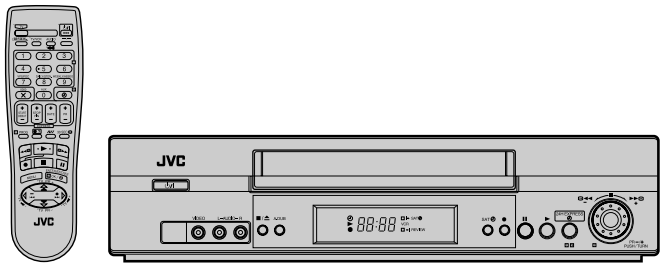
Printed in Japan

JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-J690EU, HR-J695EK, HR-J695MS, HR-J790EU, HR-J795EK, HR-J795MS



Hi-Fi
SHOWVIEW® DELUXE
VHS PAL SQPB

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-J790EU.)*

GENERAL

Power requirement	:	AC 220 V – 240 V~ , 50 Hz/60 Hz
Power consumption		
Power on	:	15 W
Power off	:	4.0 W
Temperature		
Operating	:	5°C to 40°C
Storage	:	–20°C to 60°C
Operating position	:	Horizontal only
Dimensions (W x H x D)	:	400 mm x 94 mm x 270 mm
Weight	:	3.1 kg
Format	:	VHS PAL standard
Maximum recording time		
(SP)	:	240 min. with E-240 video cassette
(LP)	:	480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system	:	PAL-type colour signal and CCIR monochrome signal, 625 lines 50 fields
Recording system	:	DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	:	45 dB
Horizontal resolution	:	250 lines
Frequency range		
Normal audio	:	70 Hz to 10,000 Hz
Hi-Fi audio	:	20 Hz to 20,000 Hz
Input/Output	:	21-pin SCART connectors: IN/OUT x 1, IN/DECODER x 1 RCA connectors: VIDEO IN x 1, AUDIO IN x 1, AUDIO OUT x 1

TUNER/TIMER

TV channel storage capacity	:	99 positions (+AUX position)
Tuning system	:	Frequency synthesized tuner
Channel coverage		
VHF	:	47 MHz – 89 MHz/ 104 MHz – 300 MHz/ 302 MHz – 470 MHz
UHF	:	470 MHz – 862 MHz
Aerial output	:	UHF channels 22 – 69 (Adjustable)
Memory backup time	:	Approx. 10 min.

ACCESSORIES

Provided accessories	:	RF cable, Infrared remote control unit, "R6" battery x 2
Optional accessories	:	Satellite Controller RM-SD1

Specifications shown are for SP mode unless specified otherwise.
E. & O.E. Design and specifications subject to change without notice.

V15D1/D14/D15

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March 2002

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The following table lists the differing points between models HR-J690EU, HR-J695EK, HR-J695MS, HR-J790EU, HR-J795EK and HR-J795MS.

ITEM \ MODEL	HR-J690EU	HR-J695EK	HR-J695MS	HR-J790EU	HR-J795EK	HR-J795MS
POWER PLUG	CEE(CLASSII)	3PIN(CLASSII)	CEE(CLASSII)	CEE(CLASSII)	3PIN(CLASSII)	CEE(CLASSII)
ADVANCED JOG	NOT USED	←	←	USED	←	←
VIDEO SYSTEM	PAL/MESECAM(MANUAL)	PAL	PAL/MESECAM/SECAM	PAL/MESECAM(MANUAL)	PAL	PAL/MESECAM/SECAM
FRONT VIDEO/AUDIO IN	NOT USED	←	←	USED	NOT USED	USED
REMOTE PAUSE	NOT USED	←	←	USED	NOT USED	USED
BROADCASTING STANDARD	"B/G,D/K"	I	"L,L',B/G"	"B/G,D/K"	I	"L,L',B/G"
STEREO DECODER	NICAM/A2	NICAM	"NICAM(L,B/G)/A2(B/G)"	NICAM/A2	NICAM	"NICAM(L,B/G)/A2(B/G)"
RF OUT SYSTEM [INITIAL]	"G,K"	I	NOT USED	"G,K"	I	NOT USED
VCR PLUS+	SHOWVIEW DELUXE	VIDEOPLUS+ DELUXE	SHOWVIEW DELUXE	←	VIDEOPLUS+ DELUXE	SHOWVIEW DELUXE
LANGUAGE [INITIAL](ON SCREEN DISPLAY)	13LANG.[E]	ENG	FRE	13LANG.[E]	ENG	FRE
AUDIO DUBBING / OPERATION	NOT USED	NOT USED	NOT USED	USED/BUTTON	NOT USED	USED/BUTTON

Notes: Mark ← is same as left.

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded ( ) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape 3) Spacers 5) Barrier
   2) PVC tubing 4) Insulation sheets for transistors

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

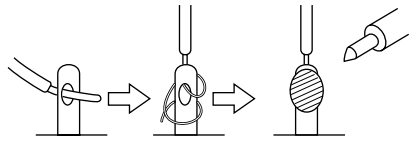


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

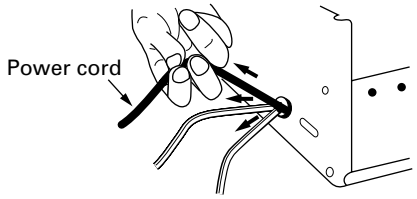


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number :** E03830-001
    2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

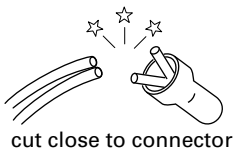


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

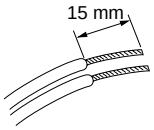


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

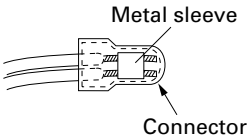


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

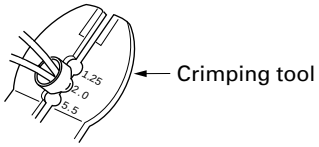


Fig.6

(5) Check the four points noted in Fig.7.

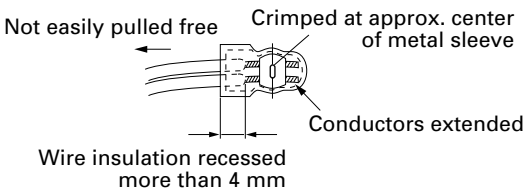

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

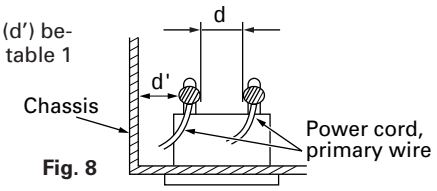


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

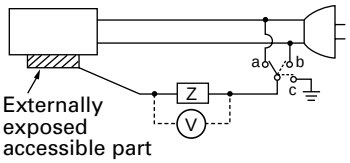


Fig. 9

5. Grounding (Class Ⅰ model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

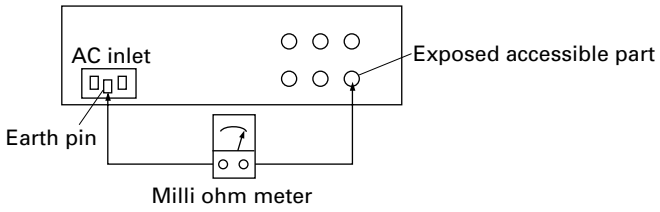


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class Ⅱ) AC 1.5 kV 1 minute (Class Ⅰ)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SECTION 1
DISASSEMBLY

1.1 Manually removing the cassette tape

If you cannot remove the cassette tape which is loaded because of any electrical or mechanical failures, manually remove it by taking the following steps.

(1) Unplug the power cord plug from the power outlet.
(2) Refer to the disassembly procedure of the VCR and perform the disassembly of the major parts before removing the mechanism assembly. (See Fig. 1-1a)

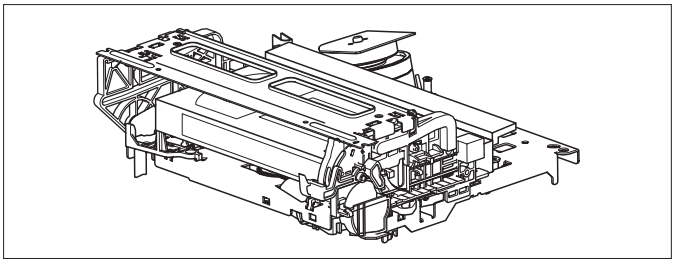


Fig. 1-1a

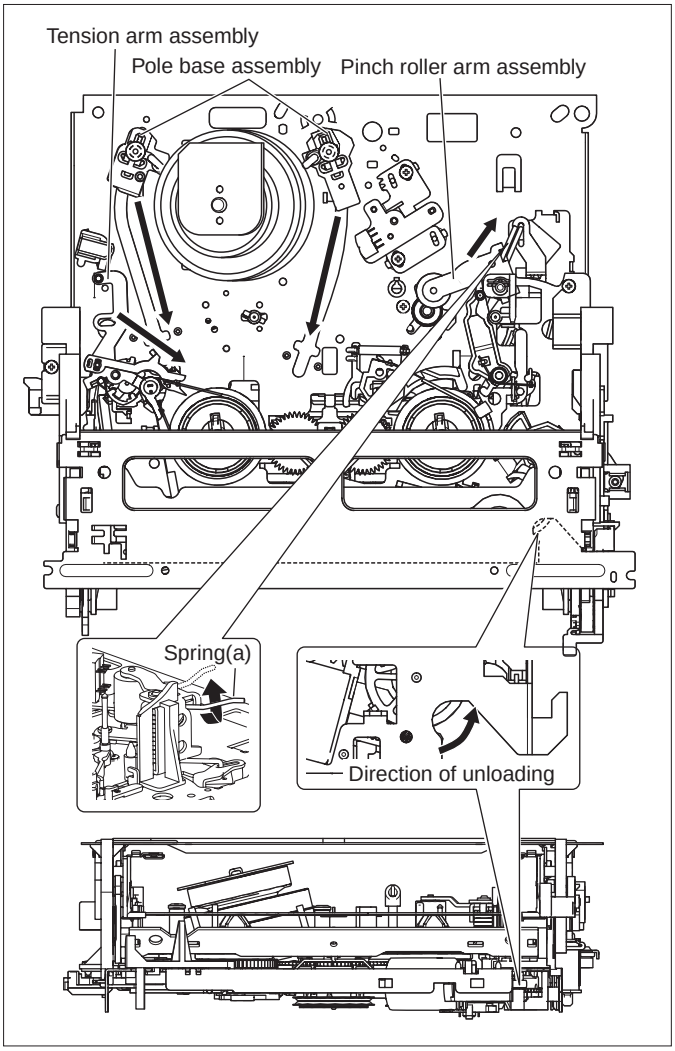


Fig. 1-1b

(3) Unload the pole base assembly by manually turning the gear of the loading motor until the pole base assembly is hidden behind the cassette lid. In doing so, hold the tape by the hand to keep the slack away from any grease. (See Fig. 1-1b.)
In case of mechanical failures, while keeping the tension arm assembly free from tension, pull out the tape on the pole base assembly. Take the spring(a) of the pinch roller arm assembly off the hook, and detach it from the tape.
(4) Remove the screw (a) of the side frame (L/R).
(5) Hold the slack tape and cassette cover together, lift the cassette tape, top frame, cassette holder and side frames (L, R) together from the rear and remove them by disengaging the hooks (a) and (b).

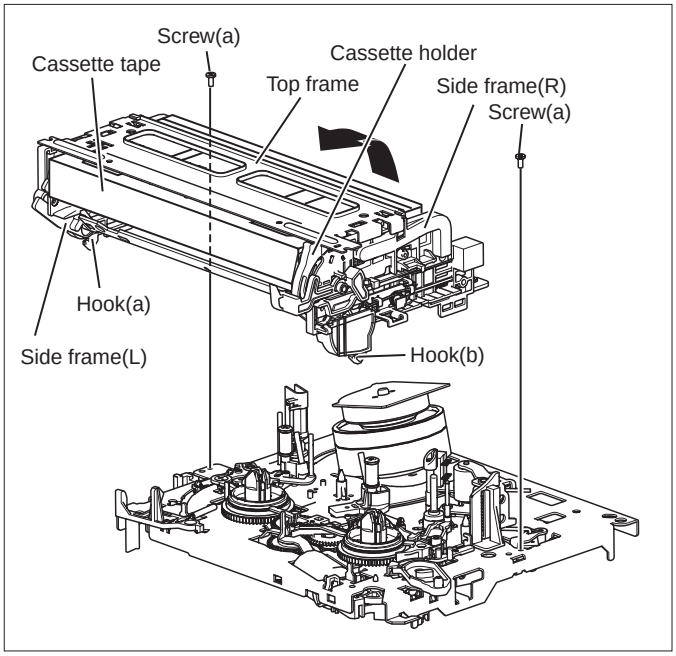


Fig. 1-1c

(6) Take up the slack of the tape into the cassette. This completes removal of the cassette tape.

1.2 Removing the major parts

1.2.1 How to read the procedure table

This table shows the steps for disassembly of the externally furnished parts and board assemblies. Reverse these steps when re-assembling them.

<Example>

Step/ Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover,	1-3a	4(S1a),(S1b),3(L1a), 2(SD1a),(P1a),(W1a), CN1(WR1a),	<Note 1a>
	Bracket		2(S1c)	

(1) (2) (3) (4) (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order.
These numbers are also used as the identification (location) No. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig. No. showing procedure or part location.
(4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P= Spring, W= Washer, S= Screw, L= Locking tab, SD= Solder, CN**(WR**)= Remove the wire (WR**) from the connector (CN**).

Note:

- ***The bracketed ( ) WR of the connector symbol are assigned nos. in priority order and do not correspond to those on the spare parts list.***

(5) Adjustment information for installation

1.2.2 Disassembly procedure

Step/ Loc No.	Part Name	Fig. No.	Point	Note
[1]	Top cover	2-3c	4(S1a), (S1b)	
[2]	Front panel assembly	2-3c	CN7001(WR2a), 2(S2a), 4(L2a), 3(L2b)	<Note 2a> <Note 2b>
	[HR-J790EU/J795EK/J795MS] (ADV. Jog board assembly)		2(S2b)	
[3]	Mechanism assembly (Drum assembly)	2-3c	CN2001(WR3a), (S3a), (S3b)	<Note 3a> <Note 3b> <Note 3c> <Note 3d>
			CN1(WR3b), (S3c), (S3d), (S3e)	
[4]	Main board assembly	2-3c	(S4a), 3(S4b), (S4c) (L4a)	
[5]	Bottom cover	2-3c	6(L5a), 2(L5b)	

<Note 2a>

- When reattaching the Front panel assembly, make sure that the door opener of the Side frame (R) is lowered in position prior to the reinstallation.
- When reattaching the Front panel assembly, pay careful attention to the switch lever of the Front panel assembly not to make it touch the switch knob of the Main board assembly from the side.
- When reattaching the Front panel assembly, lift the Cassette door slightly.

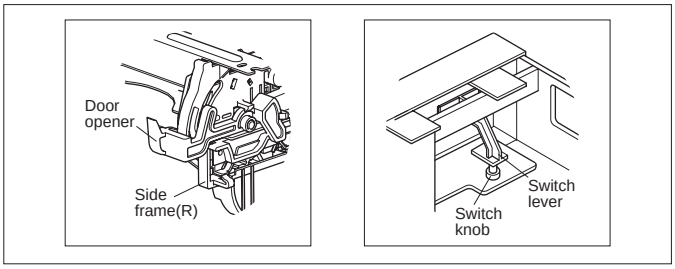


Fig. 1-2-2a

<Note 3a>

- Be careful not to damage the connector and wire etc. during connection and disconnection.
- When connecting the flat wire to the connector, be careful with the flat wire direction.

<Note 3b>

- When reattaching the Mechanism assembly, secure the screws (S3a to S3b) in the order of a, b.

<Note 3c>

- When reattaching the Mechanism assembly, be sure to align the phase of the Rotary encoder on the Main board assembly.
- When reattaching the Mechanism assembly, set the “Mechanism assembling mode”. (See “section 2 mechanism”.)
- When reattaching the Mechanism assembly to the Main board assembly, take care not to damage the sensors and switch on the Main board assembly.

<Note 3d>

- When reattaching the Drum assembly, secure the screws (S3c to S3e) in the order of c, d, e.

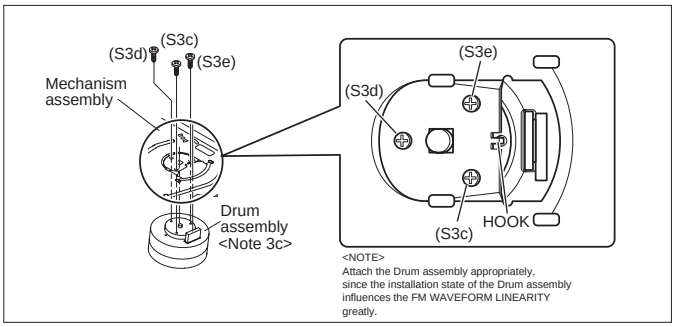


Fig. 1-2-2b

- When handling the drum assembly alone, hold it by the motor or shaft. Be careful not to touch other parts, especially the video heads. Also take care not to damage the connectors.

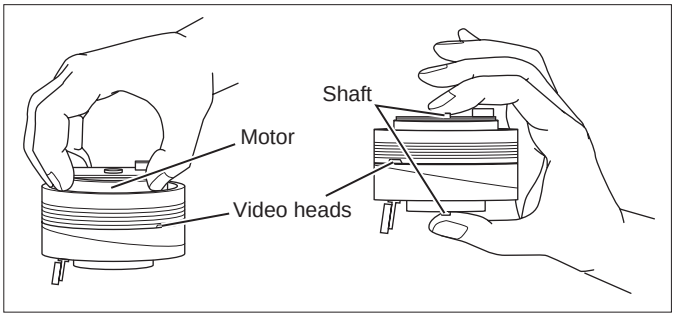


Fig. 1-2-2c

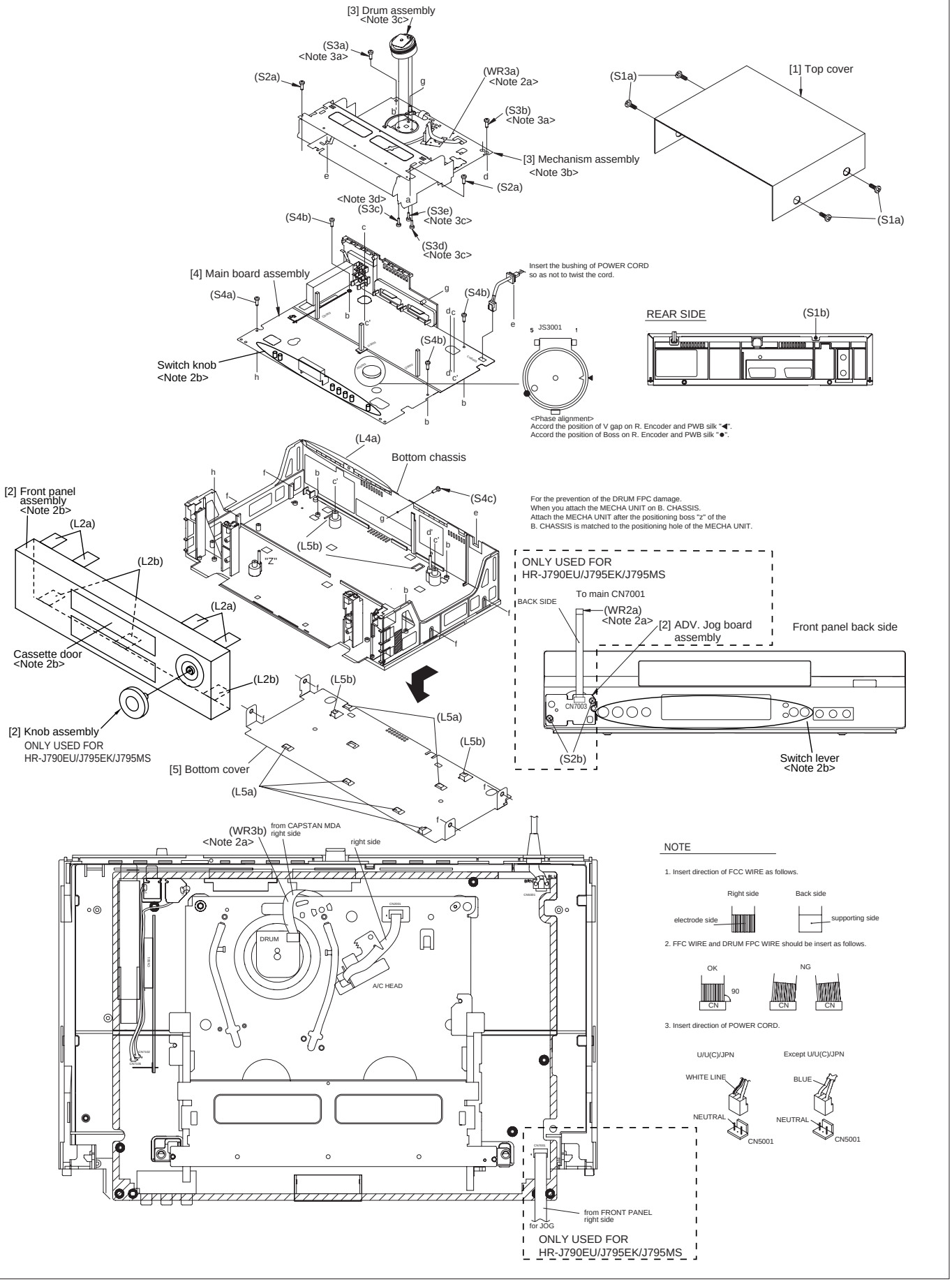

[3] Drum assembly
<Note 3c>
(S3a)
<Note 3a>
(S2a)
(WR3a)
<Note 2a>
(S3b)
<Note 3a>
[3] Mechanism assembly
<Note 3b>
(S2a)
<Note 3d>
(S3c)
(S3e)
<Note 3c>
(S3d)
<Note 3c>
(S4b)
[4] Main board assembly
(S4a)
(S4b)
Switch knob
<Note 2b>
Insert the bushing of POWER CORD
so as not to twist the cord.
JS3001
<Phase alignment>
Accord the position of V gap on R. Encoder and PWB silk "◀".
Accord the position of Boss on R. Encoder and PWB silk "●".
(S1a)
[1] Top cover
(S1a)
REAR SIDE
(S1b)
(L4a)
Bottom chassis
(S4c)
[2] Front panel
assembly
<Note 2b>
(L2a)
(L2b)
(L2a)
Cassette door
<Note 2b>
[2] Knob assembly
ONLY USED FOR
HR-J790EU/J795EK/J795MS
(L5b)
"Z"
(L2b)
(L5b)
(L5a)
(L5b)
[5] Bottom cover
(L5a)
For the prevention of the DRUM FPC damage.
When you attach the MECHA UNIT on B. CHASSIS.
Attach the MECHA UNIT after the positioning boss "z" of the
B. CHASSIS is matched to the positioning hole of the MECHA UNIT.
ONLY USED FOR
HR-J790EU/J795EK/J795MS
BACK SIDE
To main CN7001
(WR2a)
<Note 2a>
[2] ADV. Jog board
assembly
Front panel back side
CN7003
(S2b)
Switch lever
<Note 2b>
(WR3b)
<Note 2a>
from CAPSTAN MDA
right side
right side
DRUM
A/C HEAD
from FRONT PANEL
right side
for JOG
ONLY USED FOR
HR-J790EU/J795EK/J795MS
NOTE
1. Insert direction of FCC WIRE as follows.
Right side
Back side
electrode side
supporting side
2. FFC WIRE and DRUM FPC WIRE should be insert as follows.
OK
NG
90
CN
3. Insert direction of POWER CORD.
U/U(C)/JPN
Except U/U(C)/JPN
WHITE LINE
BLUE
NEUTRAL
NEUTRAL
CN5001
CN5001

Fig. 1-2-2d

1.3 Emergency display function

This unit saves details of the last two emergencies as the EMG history and allows the status of the VCR and the mechanism of each emergency to be shown both on the display and as OSD information.
When using the emergency function, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received).

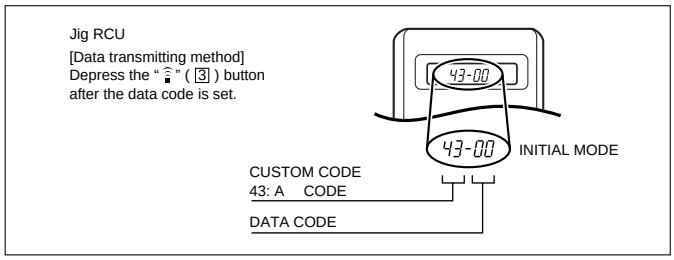


Fig. 1-3a Jig RCU [PTU94023B]

1.3.1 Displaying the EMG information

The EMG detail of information can be displayed by transmitting the code "59" from the Jig RCU.

Note:

- ***The EMG detail information <1><2> show the information on the latest EMG.***
  It becomes " – – : – – : – –" when there is no latest EMG record.

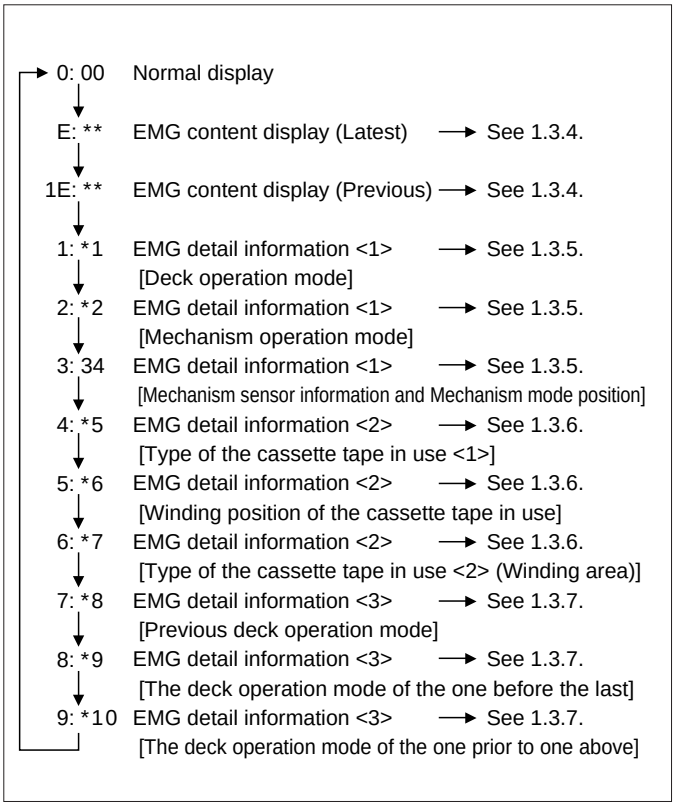

0: 00 Normal display
E: ** EMG content display (Latest) → See 1.3.4.
1E: ** EMG content display (Previous) → See 1.3.4.
1: *1 EMG detail information <1> → See 1.3.5.
[Deck operation mode]
2: *2 EMG detail information <1> → See 1.3.5.
[Mechanism operation mode]
3: 34 EMG detail information <1> → See 1.3.5.
[Mechanism sensor information and Mechanism mode position]
4: *5 EMG detail information <2> → See 1.3.6.
[Type of the cassette tape in use <1>]
5: *6 EMG detail information <2> → See 1.3.6.
[Winding position of the cassette tape in use]
6: *7 EMG detail information <2> → See 1.3.6.
[Type of the cassette tape in use <2> (Winding area)]
7: *8 EMG detail information <3> → See 1.3.7.
[Previous deck operation mode]
8: *9 EMG detail information <3> → See 1.3.7.
[The deck operation mode of the one before the last]
9: *10 EMG detail information <3> → See 1.3.7.
[The deck operation mode of the one prior to one above]

Fig. 1-3-1a EMG display of 7segment LED display model

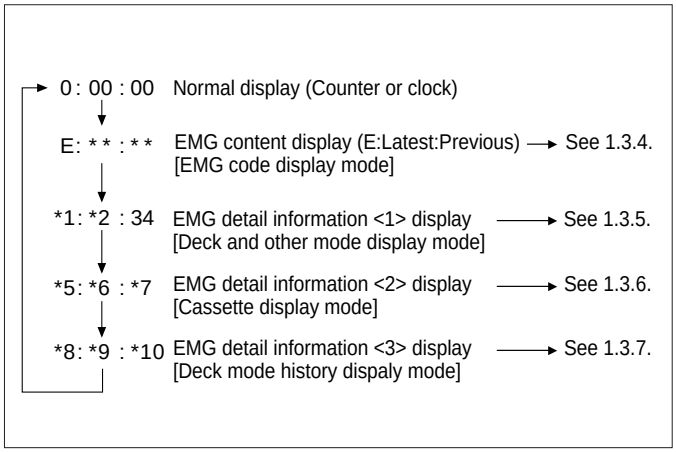

0 : 00 : 00 Normal display (Counter or clock)
E: * * : * * EMG content display (E:Latest:Previous) → See 1.3.4.
[EMG code display mode]
*1: *2 : 34 EMG detail information <1> display → See 1.3.5.
[Deck and other mode display mode]
*5: *6 : *7 EMG detail information <2> display → See 1.3.6.
[Cassette display mode]
*8: *9 : *10 EMG detail information <3> display → See 1.3.7.
[Deck mode history dispaly mode]

Fig. 1-3-1b EMG display of FDP display model

<Reference> EMG display of FDP display mode

(1) Transmit the code "59" from the Jig RCU.
The FDP shows the EMG content in the form of "E: * * : * * ".

<Example 1> E : 01 : 03
Previous EMG
Latest EMG

<Example 2> E : – – : – – ← No EMG record

(2) Transmit the code "59" from the Jig RCU again.
The FDP shows the EMG detail information <1> in the form of " * 1 : * 2 : 34 ".
- * 1 : Deck operation mode at the moment of EMG
- * 2 : Mechanism operation mode at the moment of EMG
- 3– : Mechanism sensor information at the moment of EMG
- –4 : Mechanism mode position at the moment of EMG

(3) Transmit the code "59" from the Jig RCU once again.
The FDP shows the EMG detail information <2> in the form of " * 5 : * 6 : * 7 ".
- * 5 : Type of the cassette tape in use <1> .
- * 6 : Winding position of the cassette tape in use
- * 7 : Type of the cassette tape in use <2> (Winding area)

(4) Transmit the code "59" from the Jig RCU once again.
The FDP shows the EMG detail information <3> in the form of "*8 : *9 : *10".
- * 8 : Previous deck operation mode at the moment of EMG
- * 9 : The deck operation mode of the one before the last at the moment of EMG
- * 10 : The deck operation mode of the one prior to one above at the moment of EMG

(5) Transmit the code "59" from the Jig RCU once again to reset the display.

1.3.2 Clearing the EMG history

(1) Display the EMG history.
(2) Transmit the code "36" from the Jig RCU.
(3) Reset the EMG display.

1.3.3 Details of the OSD display in the EMG display mode

During the EMG display, the OSD shows the data on the deck mode, etc. The details of the display contents are as follows.

Notes:

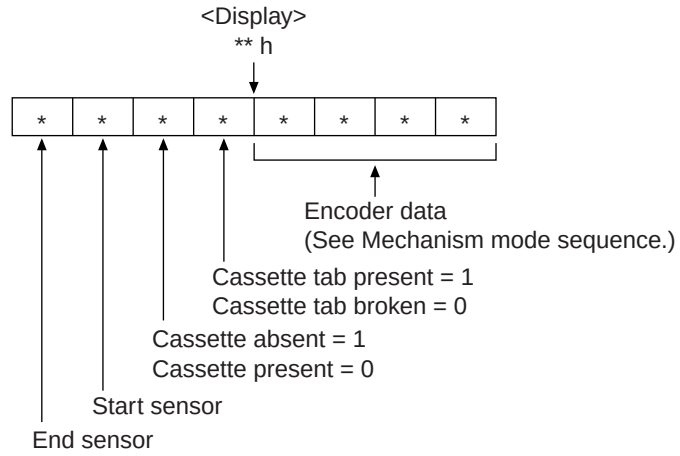
- ***The display is variable depending on the part No. of the System Control microcomputer (IC3001) built into the VCR. In the following, refer to the figure carrying the same two characters as the top two characters of the part number of your IC.***
- ***The sensor information in the OSD display contents is partially different from the mechanism sensor information in EMG detail information <1>.***

[For MN* only]

AA	BB	CC	DD	EE
FF	GG	HH	I I	J J
KK	L L	MM	NN	OO
PP	QQ	RR	SS	TT
UU	VV	WW	XX	YY

A A : Deck operation mode (See EMG detail information <1>.)
B B : Mechanism operation mode (See EMG detail of information <1>.)
C C : Mechanism transition flag
D D : Capstan motor control status
E E : Loading motor control status
F F : Sensor information (See sensor information details.)
GG : Capstan motor speed
HH : Key code (JVC code)
I I : Supply reel winding diameter data, higher 8 bits.
J J : Supply reel winding diameter data, lower 8 bits.
KK : Mechanism sensor information & mechanism mode position (See EMG detail of information <1>.)
L L : Tape speed data, higher 8 bits.
MM : Tape speed data, lower 8 bits.
N N : Cassette tape type <2>, higher 8 bits. (See EMG detail of information <2>.)
OO : Cassette tape type <2>, lower 8 bits. (See EMG detail of information <2>.)
P P : General data display area
| |
Y Y : General data display area

***FF: Sensor information details**

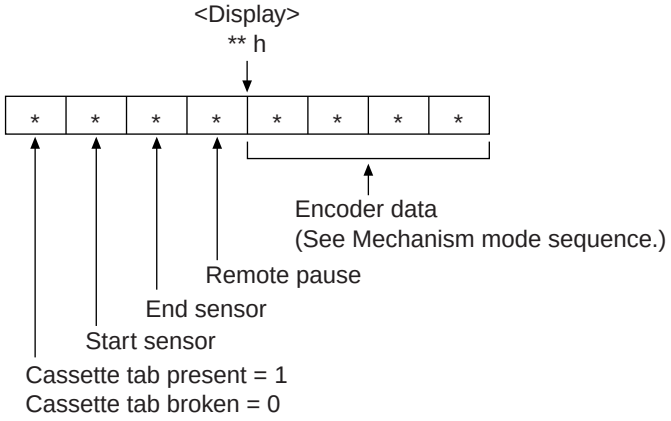


[For *HD only]

AA	BB	CC
DD	EE	FF
GGGG	HHHH	
I I	J J J J	
KKKK	L L L L	MMMM
ROM No.		

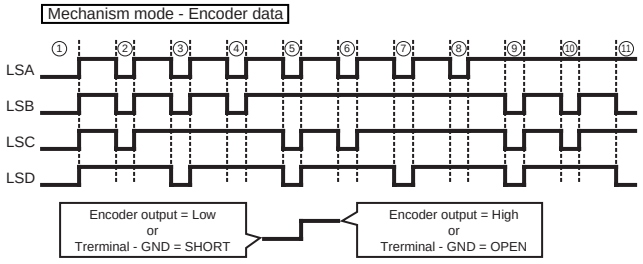
A A : Key code (JVC code)
B B : Deck operation mode (See EMG detail information <1>.)
C C : Mechanism operation mode (See EMG detail information <1>.)
D D : Sensor information (See sensor information details.)
E E : Capstan motor speed (Search, double speed)
F F : Tracking value
GGGG : Cassette tape type <2>, 16 bits. (See EMG detail information <2>.)
HHHH : Supply reel winding diameter data
I I : Capstan motor speed (FF/REW, double speed)
J J J J : Tape speed data, lower 8 bits.
K K K K : General data display area
L L L L : General data display area
MMMM : General data display area

***DD: Sensor information details**

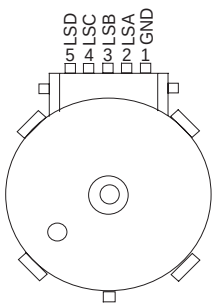


[For both MN*/HD*]

Mechanism mode sequence



No.	Position	Encoder data
①	EJECT	0 h = 0000
②	EJECT1	1 h = 0001
③	EJECT2	2 h = 0010
④	ULSTOP	3 h = 0011
⑤	UPPER	4 h = 0100
⑥	ONSTOP(PLAY)	5 h = 0101
⑦	FWD/SS	6 h = 0110
⑧	REV/SS	7 h = 0111
⑨	OFFSTOP	8 h = 1000
⑩	FFREW-BRAKE	9 h = 1001
⑪	FFREW	A h = 1010
⑫	MIDDLE	F h = 1111



1.3.4 EMG content description

Note: ***EMG contents "E08/E09" are for the model with Dynamic Drum (DD).***

FDP	CONTENT	CAUSE
E01: Loading EMG	If the mechanism mode does not change to the next mode within 4 seconds after the loading motor starts rotating in the loading direction, while the mechanism is in the after-loading position (with the tape up against the pole base), [E:01] is identified and the power is switched OFF. However, if the tape loading is not completed within 4 seconds after the loading motor starts rotating in the loading direction, the tape is simply unloaded and ejected. No EMG data is recorded in this case.	1. The mechanism is locked in the middle of the mode transition during a tape loading operation. 2. The mechanism overruns during the tape loading operation because the SYSCON cannot recognize the mechanism mode normally. This problem is due to a cause such as a rotary encoder failure. 3. Power is not supplied to the loading MDA. (M12V/Vcc/Vref/ICP are disconnected in the middle.)
E02: Unloading EMG	When the mechanism mode cannot be changed to another mode even when the loading motor has rotated for more than 4 seconds in the unloading direction, [E:02] is identified and the power is turned off.	1. The mechanism is locked in the middle of mode transition. 2. Without an eject signal being sent from the SYSCON, unloading is attempted (i.e. Ejection is attempted while the tape is still inside the mechanism.) because the SYSCON cannot recognize the mechanism mode normally. This is due to a cause such as a rotary encoder failure. (Mechanism position: UPPER) 3. Power is not supplied to the loading MDA. (M12V/Vcc/Vref/ICP are disconnected in the middle.)
E03: Take Up Reel Pulse EMG	When the falling edje of the take-up reel pulse has not been generated for more than 4 seconds in the capstan rotating mode, [E:03] is identified, the pinch rollers are turned off and stopped, and the power is turned off. In this case, however, the mechanism should be in position after tape loading. Note that the reel EMG is not detected during Slow/Frame advance operations.	1. The take-up reel pulse is not generated in the FWD transport modes (PLAY/FWD SEARCH/FF, etc.) because; 1)The idler gear is not meshed with the take-up reel gear because the mechanism malfunctions for some reason. 2)The idler gear is meshed with the take-up reel gear, but incapable of winding due to too large mechanical load (abnormal tension); 3)The reel is rotating normally but an FG pulse is not generated due to the take-up reel sensor failure. 2. The supply reel pulse is not generated in the REV transport modes (REV SEARCH/REW, etc.) because; 1) The idler gear is not meshed with the supply reel gear because the mechanism malfunctions for some reason. 2) The idler gear is meshed with the supply reel gear, but incapable of winding due to too large a mechanical load (abnormal tension); 3) The reel rotates normally but the FG pulse is not generated due to a supply reel sensor failure. 3. Power(SW5V) is not supplied to the reel sensor on the tape winding side.
E04: Drum FG EMG	When the drum FG pulse has not been input for more than 3 seconds in the drum rotating mode, [E:04] is identified, the pinch rollers are turned off and stopped, and the power is turned off.	1. The drum could not start or the drum rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high; 2) The tape is damaged or a foreign object (grease, etc.) adheres to the tape. 2. The drum FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (hall device) of the drum is faulty. 3. The drum control voltage (DRUM CTL V) is not supplied to the MDA. 4. Power (M12V) is not supplied to the drum MDA.
E05: Cassette Eject EMG	If the cassette does not reach the eject position within about 0.7 seconds after the cassette housing has started the cassette ejection operation, [E:05] is identified, the drive direction is reversed to load the tape, the mode is switched to STOP mode with the pinch roller OFF, and the power is switched OFF. During the cassette insertion process, the drive direction is reversed and the cassette is ejected if the tape is not up against the pole base within about 3 seconds after the start of the cassette pulling-in operation. If the cassette does not reach the eject position within about 0.7 seconds after the drive mode reversal operation, [E:05] is identified and the power is switched OFF immediately.	1. The cassette cannot be ejected due to a failure in the drive mechanism of the housing. 2. When the housing load increases during ejection, the loading motor is stopped because of lack of headroom in its drive torque. Housing load increasing factors: Temperature environment (low temperature, etc.), mechanism wear or failure. 3. The sensor/switch for detecting the end of ejection are not functioning normally. 4. The loading motor drive voltage is lower than specified or power (M12V) is not supplied to the motor (MDA). 5. When the user attempted to eject a cassette, a foreign object (or perhaps the user's hand) was caught in the opening of the housing.
E06: Capstan FG EMG	When the capstan FG pulse has not been generated for more than 1 second in the capstan rotating mode, [E:06] is identified, the pinch rollers are turned off and stopped, and the power is turned off.However, the capstan EMG is not detected in SLOW/STILL modes. Note that, if the part number of the System Control IC begins with "MN" or "M3", the capstan EMG is not detected even during the FF/REW operation.	1. The capstan could not start or the capstan rotation has stopped due to too large a load on the tape, because; 1) The tape tension is abnormally high (mechanical lock); 2) The tape is damaged or a foreign object (grease, etc.) is adhered to the tape (occurrence of tape entangling, etc.). 2. The capstan FG pulse did not reach the System controller CPU because; 1) The signal circuit is disconnected in the middle; 2) The FG pulse generator (MR device) of the capstans is faulty. 3. The capstan control voltage (CAPSTAN CTL V) is not supplied to the MDA. 4. Power (M12V, SW5V) are not supplied to the capstan MDA.
E07: SW Power Short-Circuit EMG	When short-circuiting of the SW power supply with GND has lasted for 0.5 second or more, [E:07] is identified, all the motors are stopped and the power is turned off.	1. The SW 5 V power supply circuit is shorted with GND. 2. The SW 12 V power supply circuit is shorted with GND.
E08: DD Initialized (Absolute Position Sensor) EMG	When DD tilting does not complete in 4 seconds, [E:08] is identified, the tilt motor is stopped and the power is turned off.	1. The absolute value sensor is defective. (The soldered parts have separated.) 2. The pull-up resistor at the absolute sensor output is defective. (The soldered parts have separated.) 3. Contact failure or soldering failure of the pins of the connector (board-to-board) to the absolute value sensor. 4. The absolute value sensor data is not sent to the System Controller CPU.
E09: DD FG EMG	When the DD FG pulse is not generated within 2.5 seconds, [E:09] is identified, the tilt motor is stopped and the power is turned off.	1. The FG sensor is defective. (The soldered parts have separated.) 2. The pull-up resistor at the FG sensor output is defective. (The soldered parts have separated.) 3. Contact failure or soldering failure of the pins of the connector (board-to-board) to the FG sensor. 4. The power (5V) to the sensor is not supplied. (Connection failure/soldering failure) 5. The FG pulse is not sent to the System Controller CPU. 6. The tilt motor is defective. (The soldered parts have separated.) 7. The drive power to the tilt motor is not supplied. (Connection failure/soldering failure) 8. The tilt motor drive MDA - IC is defective. 9. Auto-recovery of the DD tilting cannot take place due to overrun.
E0A: Supply Reel Pulse EMG	When the falling edge of the supply reel pulse has not been generated for more than 10 seconds in the capstan rotating mode, [E:0A] is identified and the cassette is ejected (but the power is not turned off). In this case, however, the mechanism should be in the position after tape loading (with the tape up against the pole base). Also note that the reel EMG is not detected during Slow/Frame advance operations.	1. The supply reel pulse is not generated in the FWD transport mode (PLAY/FWD SEARCH/FF, etc.) because; 1) PLAY/FWD or SEARCH/FF is started while the tape in the inserted cassette is cut in the middle; 2) A mechanical factor caused tape slack inside and outside the supply reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the FWD transport, so the pulse is not generated until then; 3) The reel is rotating normally but the FG pulse is not generated due to a supply reel sensor failure. 2. The take-up reel pulse is not generated in the REV transport mode (REV SEARCH/REW, etc.). 1) REV SEARCH/REW is started when the tape in the inserted cassette has been cut in the middle; 2) A mechanical factor caused tape slack inside and outside the take-up reel side of the cassette shell. In this case, the supply reel will not rotate until the tape slack is removed by the REV transport, so the pulse will not be generated until that time; 3) The reel is rotating normally but the FG pulse is not generated due to a take-up reel sensor failure. 3. The power (SW 5V) to a reel sensor is not supplied.
EU1: Head clog warning history	Presupposing the presence of the control pulse output in the PLAY mode, when the value obtained by mixing the two V.FM output channels (without regard to the A.FM output) has remained below a certain threshold level for more than 10 seconds, [E:U1] is identified and recorded in the emergency history. During the period in which the head clog is detected, the FDP shows "U:01" and the OSD repeats the "3 seconds of warning display" and the "7 seconds of noise picture display" alternately. EMG code : "E:C1" or "E:U1" / FDP : "U:01" / OSD : "Try cleaning tape." or "Use cleaning cassette." The head clog warning is reset when the above-mentioned threshold has been exceeded for more than 2 seconds or the mode is changed to another mode than PLAY.	

Table 1-3-4a

1.3.5 EMG detail information <1>

The status (electrical operation mode) of the VCR and the status (mechanism operation mode/sensor information) of the mechanism in the latest EMG can be confirmed based on the figure in EMG detail information <1> .

[FDP/OSD display]

*1 : *2 : 34

*1 : Deck operation mode at the moment of EMG
*2 : Mechanism operation mode at the moment of EMG
3– : Mechanism sensor information at the moment of EMG
–4 : Mechanism mode position at the moment of EMG

Note:

- ***For EMG detailed information <1>, the content of the code that is shown on the display (or OSD) differs depending on the parts number of the system control microprocessor (IC3001) of the VCR. The system control microprocessor parts number starts with two letters, refer these to the corresponding table.***

***1 : Deck operation mode**
[Common table of MN* and HD]

Display		Deck operation mode
MN*	HD*	
00	-	Mechanism being initialized
01	00	STOP with pinch roller pressure off (or tape present with P.OFF)
02	01	STOP with pinch roller pressure on
03	-	POWER OFF as a result of EMG
04	04	PLAY (Normal playback)
0C	0E	REC
10	11	Cassette ejected
20	22	FF
21	-	Tape fully loaded, START sensor ON, short FF
22	-	Cassette identification FWD SEARCH before transition to FF (SP x7-speed)
24	26	FWD SEARCH (variable speed) including x2-speed
2C	2E	INSERT REC
40	43	REW
42	-	Cassette identification REV SEARCH before transition to REW (SP x7-speed)
44	47	REV SEARCH (variable speed)
4C	4C	AUDIO DUB
6C	6E	INSERT REC (VIDEO + AUDIO)
84	84	FWD STILL / SLOW
85	85	REV STILL / SLOW
8C	8F	REC PAUSE
8D	-	Back spacing
8E	-	Forward spacing (FWD transport mode with BEST function)
AC	AF	INSERT REC PAUSE
AD	-	INSERT REC back spacing
CC	CD	AUDIO DUB PAUSE
CD	-	AUDIO DUB back spacing
EC	EF	INSERT REC (VIDEO + AUDIO) PAUSE
ED	-	INSERT REC (VIDEO + AUDIO) back spacing

***2 : Mechanism operation mode**
[Table of MN*]

Display	Mechanism operation mode
00	Command standby (No command to be executed)
01	Immediate Power OFF after EMG occurrence
02	Loading from an intermediate position during mechanism initialization
03	Unloading due to EMG occurrence during mechanism initialization
04	Ejecting cassette (ULSTOP to EJECT)
05	Inserting cassette (EJECT to ULSTOP)
06	Loading tape (ULSTOP to PLAY)
07	Unloading tape (PLAY to ULSTOP)
08	Transition from pinch roller ON to STOP
09	Transition from pinch roller OFF to STOP (PLAY to OFFSTOP)
0A	Transition from pinch roller OFF to STOP at power OFF
0B	Transition from pinch roller ON to STOP at power ON
0C	Transition to PLAY
0D	Transition to Search FF
0E	Transition to REC
0F	Transition to FWD STILL/SLOW
10	Transition to REV STILL/SLOW
11	Transition to Search REV
12	Transition from FF/REW to STOP
13	Transition to FF
14	Transition to REW
15	Tape end detection processing during loading
16	Short FWD/REV at tape sensor ON during unloading
17	Transition to FF/REW brake mode

[Table of HD*]

Display	Mechanism operation mode
00	STOP with pinch roller pressure off
01	STOP with pinch roller pressure on
02	U/L STOP (or tape being loaded)
04	PLAY (Normal playback)
05	PLAY (x1-speed playback using JOG)
0E	REC
11	Cassette ejected
22	FF
26	FWD SEARCH (variable speed) including x2-speed
2E	INSERT REC
43	REW
47	REV SEARCH
4C	AUDIO DUB
6E	INSERT REC (VIDEO + AUDIO)
84	FWD STILL/SLOW
85	REV STILL/SLOW
8F	REC PAUSE
AF	INSERT REC PAUSE
C7	REV SEARCH (x1-speed reverse playback using JOG)
CD	AUDIO DUB PAUSE
EF	INSERT REC (VIDEO + AUDIO) PAUSE
F0	Mechanism being initialized
F1	POWER OFF as a result of EMG
F2	Cassette being inserted
F3	Cassette being ejected
F4	Transition from STOP with pinch roller pressure on to STOP with pinch roller pressure off
F5	Transition from STOP with pinch roller pressure on to PLAY
F6	Transition from STOP with pinch roller pressure on to REC
F7	Cassette type detection SEARCH before FF/REW is being executed
F8	Tape being unloaded
F9	Transition from STOP with pinch roller pressure off to STOP with pinch roller pressure on
FA	Transition from STOP with pinch roller pressure off to FF/REW
FB	Transition from STOP with pinch roller pressure off to REC.P (T.REC,etc.)
FC	Transition from STOP with pinch roller pressure off to cassette type detection SEARCH
FD	Short REV being executed after END sensor on during unloading
FE	Tension loosening being executed after tape loading (STOP with pinch roller pressure on)
FF	Tape being unloaded

3– : Mechanism sensor information
[Common table of MN* and HD*]

Display	Mechanism sensor information			
	REC safety SW	Start sensor	End sensor	Mechansim position sensor
0-	Tab broken	ON	ON	ON
1-	Tab broken	ON	ON	OFF
2-	Tab broken	ON	OFF	ON
3-	Tab broken	ON	OFF	OFF
4-	Tab present	OFF	ON	ON
5-	Tab present	OFF	ON	OFF
6-	Tab present	OFF	OFF	ON
7-	Tab present	OFF	OFF	OFF
8-	Tab broken	ON	ON	ON
9-	Tab broken	ON	ON	OFF
A-	Tab broken	ON	OFF	ON
B-	Tab broken	ON	OFF	OFF
C-	Tab present	OFF	ON	ON
D-	Tab present	OFF	ON	OFF
E-	Tab present	OFF	OFF	ON
F-	Tab present	OFF	OFF	OFF

Tab broken = 0 Sensor ON = 0 Sensor ON = 0
Tab present = 1 sensor OFF = 1 Sensor OFF = 1

–4 : Mechanism mode position
[Common table of MN* and HD*]

Mechanism sensor information	Display	Deck operation mode	
Even number (0, 2, 4, 6, 8, A, C, E)	-0	Not established	
	-1	EJECT	EJECT position
	-2	EJECT-EJECT1	Intermodal position
	-3	EJECT1	EJECT1 position
	-4	EJECT1-EJECT2	Intermodal position
	-5	EJECT2	EJECT2 position
	-6	EJECT2-ULSTOP	Intermodal position
	-7	ULSTOP	ULSTOP position
	-8	ULSTOP-UPPER	Intermodal position
	-9	UPPER	Loading (unloading) tape
	-A	UPPER-ONSTOP	Intermodal position
	-B	ONSTOP	PLAY position
	-C	PLAY-FWD/SS	Intermodal position
	-D	FWD/SS	FWD (FWD Still/Slow) position
	-E	FWD/SS-REV	Intermodal position
	-F	REV	REV (REV Still/Slow) position
Odd number (1, 3, 5, 7, 9, B, D, F)	-0	REV-OFFSTOP	Intermodal position
	-1	OFFSTOP	Pinch roller OFF position
	-2	OFFSTOP-FFREWB	Intermodal position
	-3	FFREWB	FF/REW Brake position
	-4	FFREWB-FFREW	Intermodal position
	-5	FFREW	FF/REW position

1.3.6 EMG detail information <2>

The type of the cassette tape and the cassette tape winding position can be confirmed based on the figure in EMG detail information <2> .

[FDP/OSD display]

*5 :*6 :*7

*5 : Type of the cassette tape in use <1>
*6 : Winding position of the cassette tape in use
*7 : Type of the cassette tape in use <2> (Winding area)

Note:

- ***EMG detail information <2> is the reference information stored using the remaining tape detection function of the cassette tape. As a result, it may not identify cassette correctly when a special cassette tape is used or when the tape has variable thickness.***

***5 : Cassette tape type <1>**

Display	Cassette tape type <1>
00	Cassette type not identified
16	Large reel/small reel (T-0 to T-15/T-130 to T-210) not classified
82	Small reel, thick tape (T-120) identified/thin tape (T-140) identified
84	Large reel (T-0 to T-60) identified
92	Small reel, thick tape (T-130) identified/thin tape (T-160 to T-210) identified
93	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) not classified
C3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
D3	Small reel, thick tape/C cassette (T-0 to T-100/C cassette) being classified
E1	C cassette, thick tape (TC-10 to TC-20) identified
E2	Small reel, thick tape (T-0 to T-100) identified
E9	C cassette, thin tape (TC-30 to TC-40) identified
F1	C cassette, thick tape/thin tape (TC-10 to TC-40) not classified

Notes:

- ***Cassette tape type <1> is identified a few times during mode transition and the identification count is variable depending on the cassette tape type. If an EMG occurs in the middle of identification, the cassette tape type may not be able to be identified.***
- ***If other value than those listed in the above table is displayed, the cassette tape type is not identified.***

***6 : Cassette tape winding position**

The cassette tape winding position at the moment of EMG is displayed by dividing the entire tape (from the beginning to the end) in 21 sections using a hex number from “00” to “14”.

“00” : End of winding
“14” : Beginning of winding
“FF” : Tape position not identified

***7 : Cassette tape type <2> (Winding area)**

Display	Cassette tape type <2>		(Reference) Word data (Beginning) (End)
00	Cassette type not identified		
04 - 08	C cassette, thick tape	TC-10	(0497 - 0506) (0732 - 0858)
05 - 06	Small reel, thick tape	T-20	(05A9 - 0661)
05 - 0C	C cassette, thick tape	TC-20P	(0599 - 05FF) (0AA1 - 0C07)
06 - 0C	C cassette, thin tape	TC-40	(0623 - 063D) (0C41 - 0CC3)
06 - 0C	C cassette, thin tape	TC-30	(0611 - 0638) (0C0C - 0CB2)
07 - 08	Small reel, thick tape	T-40	(07CC - 08E5)
09 - 0B	Small reel, thick tape	T-60	(09FD - 0B78)
0C - 0D	Small reel, thick tape	T-80(DF-160)	(0C20 - 0DFC)
0D - 0F	Small reel, thick tape	T-90(DF-180)	(0D31 - 0F3E)
0E - 10	Small reel, thick tape	T-100	(0E43 - 107F)
10 - 12	Small reel, thin tape	T-140	(10E1 - 120C)
10 - 13	Small reel, thick tape	T-120(DF-240)	(1073 - 1313)
11 - 14	Small reel, thick tape	T-130	(1185 - 1429)
12 - 14	Small reel, thin tape	T-160	(12D3 - 141F)
13 - 14	Small reel, thin tape	T-210(DF-420)	(1373 - 14C3)
13 - 14	Small reel, thin tape	T-180(DF-360)	(1357 - 14C0)
13 - 14	Small reel, thin tape	T-168	(1395 - 14EE)
13 - 14	Small reel, thick tape	DF-300	(13A8 - 14CE)
15 - 16	Large reel	T-20	(1536 - 1618)
16 - 17	Large reel	T-30	(1647 - 175A)
17 - 18	Large reel	T-40	(1759 - 189C)
19 - 1B	Large reel	T-60	(1989 - 1B2F)

Note:

- ***The values of cassette tape type <2> in the above table are typical values with representative cassette tapes.***

1.3.7 EMG detail information <3>

Three deck operation modes preceding the deck operation mode in which the EMG occurs may be confirmed based on the figures in the EMG information detail <3>. For the contents of the displayed information, see the table "Deck operation mode" in section "1.3.5 EMG detail information <1>".

1.4 Service position

This unit has been designed so that the Mechanism and Main board assemblies can be removed together from the chassis assembly. Before diagnosing or servicing the circuit boards, take out the major parts from the chassis assembly.

1.4.1 How to set the “Service position”

(1) Refer to the disassembly procedure and perform the disassembly of the major parts before removing the Mechanism assembly.
(2) Remove the screws that fix the Mechanism assembly to the Chassis assembly. If any other screws are used to fix the boards, remove them also.
(3) Remove the combined Mechanism and Main board assemblies.
(4) If any other major parts are used, remove them also.
(5) Connect the wires and connectors of the major parts that have been removed in steps (1) to (4). (Refer to Fig. 1-2-2d.)
(6) Place the combined Mechanism, Main board and other board assemblies upside down.
(7) Insert the power cord plug into the power outlet and then proceed with the diagnostics and servicing of the board assembly.

Notes:

- ***Before inserting the power cord plug into the power outlet, make sure that none of the electrical parts are able to short-circuit between the workbench and the board assembly.***
- ***For the disassembly procedure of the major parts and details of the precautions to be taken, see “1.2 Removing the major parts”.***
- ***If there are wire connections from the Main board and Mechanism assemblies to the other major parts, be sure to remove them (including wires connected to the major parts) first before performing step (2).***
- ***When carrying out diagnosis and repair of the Main board assembly in the “Service position”, be sure to ground both the Main board and Mechanism assemblies. If they are improperly grounded, there may be noise on the playback picture or FDP counter display may move even when the mechanism is kept in an inoperative status.***
- ***In order to diagnose the playback or recording of the cassette tape, set the Mechanism assembly to the required mode before placing it upside down. If the mechanism mode is changed (including ejection) while it is in an upside down position the tape inside may be damaged.***
- ***For some models, the mechanism and board assemblies are attached by connectors only. When carrying out a diagnosis or repair of the boards in the “Service position”, make sure that the connectors are not disconnected.***

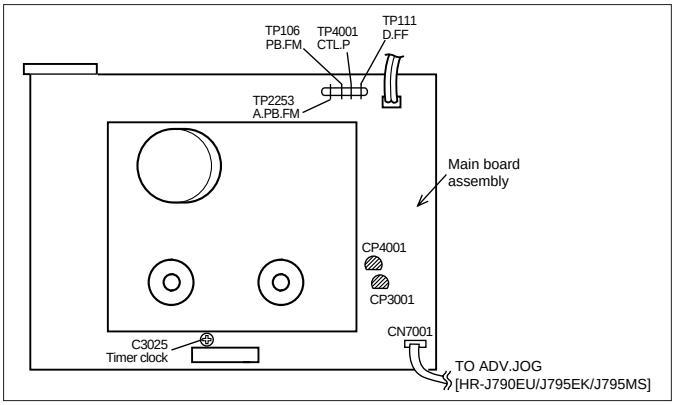


Fig. 1-4-1a

1.5 Jig RCU mode

This unit uses the following two modes for receiving remote control codes.

1) User RCU mode : Ordinary mode for use by the user.
2) Jig RCU mode : Mode for use in production and servicing.

When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). As both of the above two modes are stored in the EEPROM, it is required to set the VCR back to the User RCU mode each time that an adjustment is made or to check that the necessary operations have been completed. These modes can be set by the operations described below.

1.5.1 Setting the Jig RCU mode

(1) Unplug the power cord plug from the power outlet.
(2) Press and hold the “REC” and “PAUSE” buttons on the VCR simultaneously, while plugging the power cord plug into the power outlet.
When the VCR is set to the Jig RCU mode, the symbols (“ : ”) in the time display of the FDP are turned off.

1.5.2 Setting the User RCU mode

(1) Turn off the power.
(2) Press the “REC” and “PAUSE” buttons of the VCR simultaneously. Alternatively, transmit the code “80” from the Jig RCU.

1.6 Mechanism service mode

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the “Mechanism service mode”.

1.6.1 How to set the “Mechanism service mode”

(1) Set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received).
(2) Transmit the code “E5” from the Jig RCU.
(3) Release the lug of the Cassette holder and then slide the Cassette holder toward the direction where the Cassette holder is loaded by manually.
(4) The cassette holder lowers and, when the loading has completed, the mechanism enters the desired mode.
When the VCR is set to the Mechanism service mode, the symbols (“Timer”) in the FDP (LED) are blinked.

1.6.2 How to exit from the "Mechanism service mode"

(1) Unplug the power cord plug from the power outlet.

1.7 Maintenance and inspection

1.7.1 Cleaning

Regular cleaning of the transport system parts is desirable but practically impossible. So make it a rule to carry out cleaning of the tape transport system whenever the machine is serviced.
When the video head, tape guide and/or brush get soiled, the playback picture may appear inferior or at worst disappear, resulting in possible tape damage.

Note:

- ***Absolutely avoid sweeping the upper drum vertically as this will cause damage to the video head.***

(1) When cleaning the upper drum (especially the video head), soak a piece of closely woven cloth with alcohol and while holding the cloth onto the upper drum by the fingers, turn the upper drum counterclockwise.
(2) To clean the parts of the tape transport system other than the upper drum, use a piece of closely woven cloth or a cotton swab soaked with alcohol.
(3) After cleaning, make sure that the cleaned parts are completely dry before using the cassette tape.

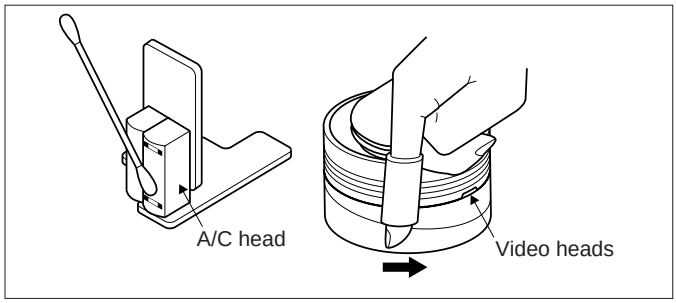


Fig. 1-7-1a

1.7.2 Lubrication

With no need for periodical lubrication, you have only to lubricate new parts after replacement. If any oil or grease on contact parts is soiled, wipe it off and newly lubricate the parts.

Note:

- ***See the "mechanism assembly" diagram of the "parts list" for the lubricating or greasing spots, and for the types of oil or grease to be used.***

1.7.3 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts name	Operation hours	
		1000H	2000H
Tape transport	Drum assembly	C,X	X
	A/C head	C,X	C,X
	Pinch roller arm assembly	C	C
	Full erase head	C	C
	Tension arm assembly	C	C
	Capstan motor (Shaft)	C	C
	Guide arm assembly	C	C
Drive	Capstan motor		X
	Capstan brake assembly		X
	Main brake assembly		X
	Belt (Capstan)	X	X
	Loading motor		X
	Clutch unit		X
	Worm gear		X
	Control plate		X
Other	Rotary encoder		X

C : Cleaning
X : Inspection or Replacement if necessary

SECTION 2
MECHANISM

2.1 Before disassembling

2.1.1 Notes

This model's mechanism relates closely to the rotary encoder and system control circuit (the rotary encoder is meshed with the control cam).
The system control circuit detects the mechanism condition using the rotary encoder's phase (internal switch phase). Therefore, the parts such as the rotary encoder, control plate, loading gear and control cam need to be installed correctly in order for the mechanism to operate properly. (For the mechanism phase adjustment, refer to the installation of each part.)

- For the disassembly procedure of the major parts of the main unit and notes, refer to the "section 1 disassembly".
- Before using a soldering iron, be sure to disconnect the power plug from the AC outlet.
- Do not touch any of the adjustment points until a defect position is specified.
- When plugging or unplugging the connector, be sure not to damage the wire.
- Be sure the springs are hooked all the way around and in the correct direction.
- When performing repairs, take care not to damage a catch, etc.

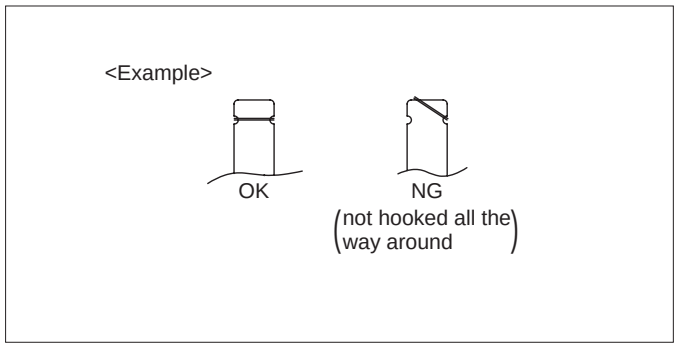


Fig. 2-1-1a

2.1.2 Mechanism operation check

When the mechanism is operated without a cassette loaded, operate the mechanism in the mechanism service mode. (Refer to the "section 1 disassembly".)

2.1.3 Setting the mechanism assembling mode

The mechanism-assembling mode is provided with this mechanism. When disassembling and assembling, it is required to engage this mode.
Set the mode by adopting the following procedures.

(1) Remove the mechanism assembly using the disassembling procedure.
(2) Turn gear (a) of the loading motor manually to set the mechanism assembly to the eject end mode. Make sure that the main deck is connected to the guide hole (a) of the drive lever and the seal (a) of the main deck is connected to the mark "E" of the control plate. This condition is called the mechanism-assembling mode.

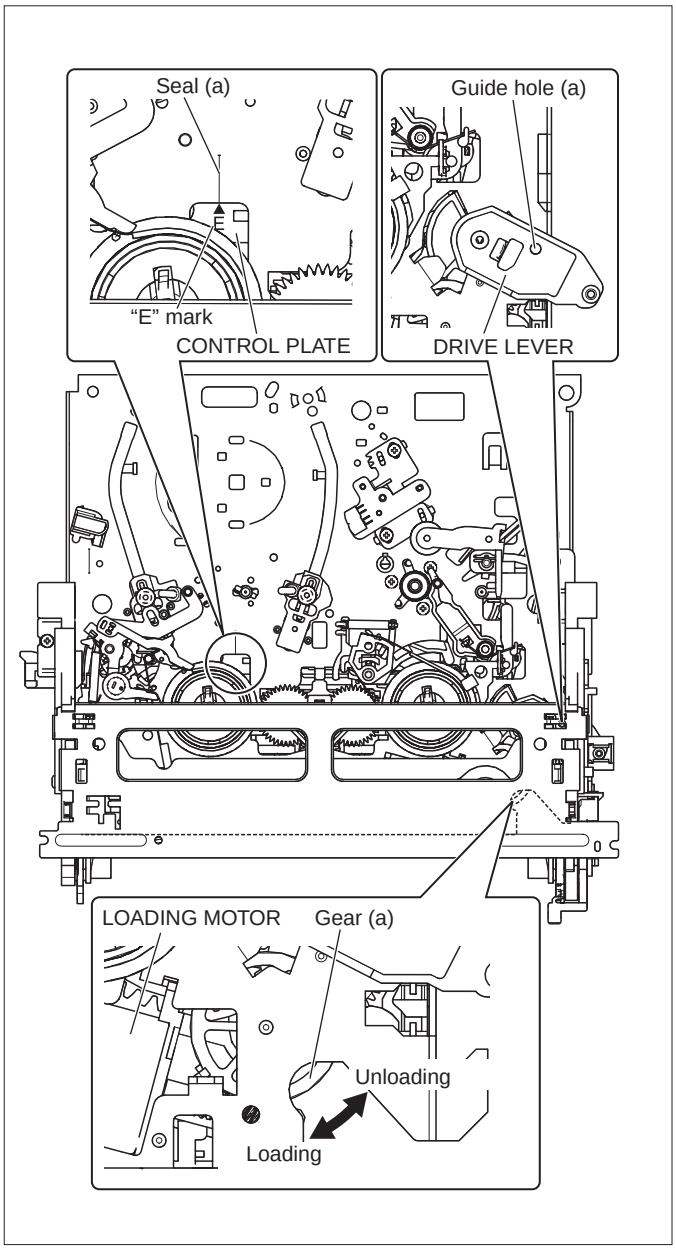


Fig. 2-1-3a

2.1.4 Layout of the main mechanism parts

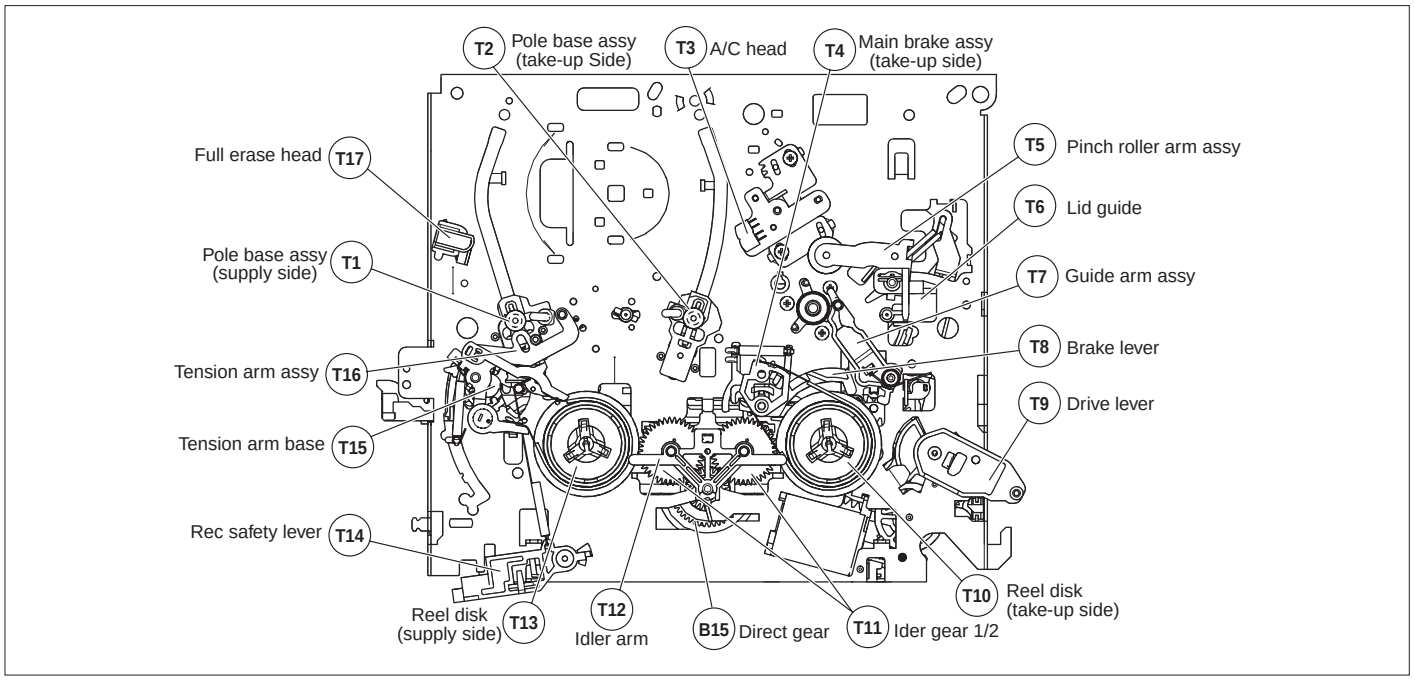

T2 Pole base assy (take-up Side)
T3 A/C head
T4 Main brake assy (take-up side)
T5 Pinch roller arm assy
T6 Lid guide
T7 Guide arm assy
T8 Brake lever
T9 Drive lever
T10 Reel disk (take-up side)
T11 Ider gear 1/2
B15 Direct gear
T12 Idler arm
T13 Reel disk (supply side)
T14 Rec safety lever
T15 Tension arm base
T16 Tension arm assy
T17 Full erase head
T1 Pole base assy (supply side)

Fig. 2-1-4a

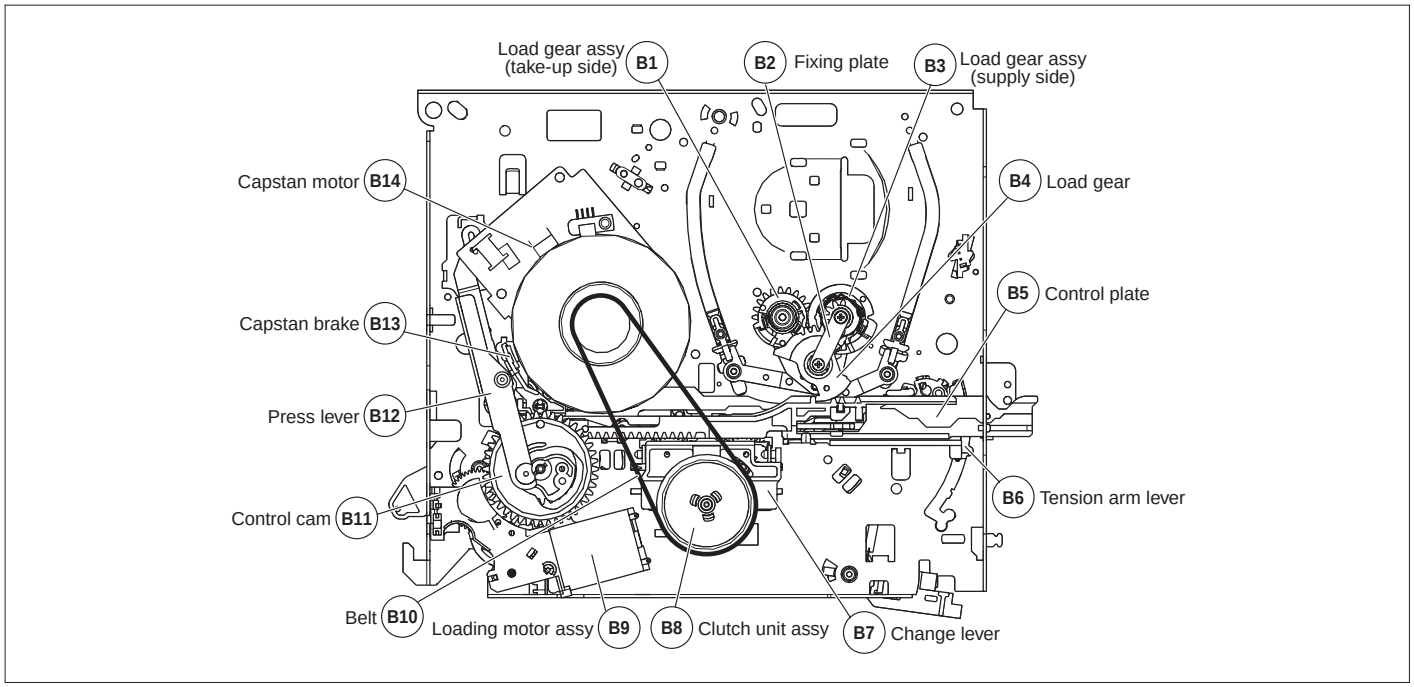


Fig. 2-1-4b

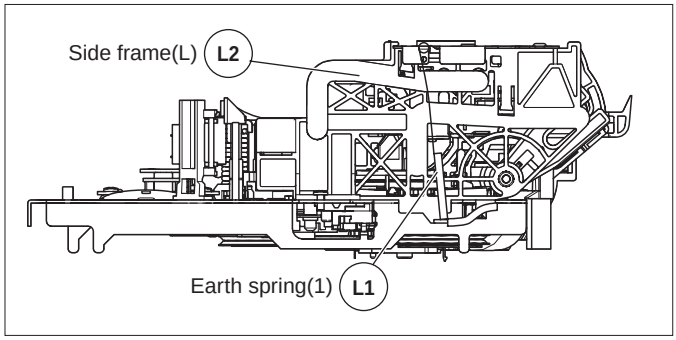


Fig. 2-1-4c

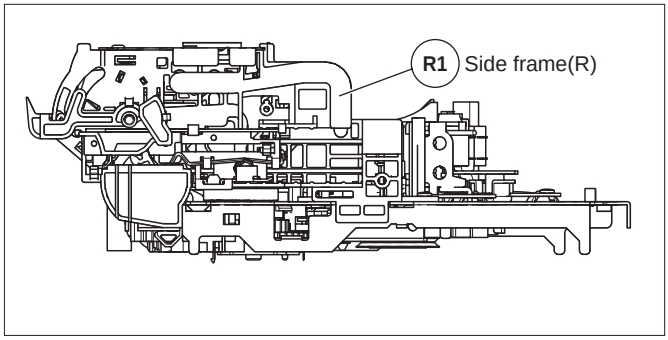


Fig. 2-1-4d

2.1.5 Disassembling procedure table

This table shows the order of parts removal when replacing each part. For replacement, remove the parts in the order of 1 to 13 shown in the table and install the parts in the reverse order.
The symbol number before each part name shows the number in the figure “Layout of the main mechanism parts”. T and B on the right of each part name show the side from which the part should be removed (T: From the front of the mechanism, B: From the rear of the mechanism, T/B: From both sides).

	Symbols and numbers			L1	-	-	L2	-	R1	T6	T12	T11	T4	T10	T16	T15	B12	B11	B13	B9	B10	B2	B4	B3	B1	B5	B8	B15
Symbols and numbers	Removal parts / (Reference items) Replacement parts	Front(T)/Back(B) of mechanism	Number of removal steps	Earth spring (1)	Top frame	Cassette holder	Side frame (L)	Drive arm	Side frame (R)	Lid guide	Idler arm	Idler gear 1/2	Main brake (T)	Reel disk (T)	Tension arm	Tension arm base	Press lever	Control cam	Capstan brake assy	Loading motor assy	Belt	Fixing plate	Load gear	Loading gear assy (S)	Loading gear assy (T)	Control plate	Clutch unit	Direct gear
L1	2.1 Earth spring (1)	T	1																									
-	2.1 Top frame	T	2	1																								
-	2.1 Cassette holder	T	3	1	2																							
L2	2.1 Side frame (L)	T	3	1	2																							
-	2.1 Drive arm	T	5	1	2	3	4																					
R1	2.1 Side frame (R)	T	3	1	2																							
T3	2.2 A/C head	T	1																									
T17	- FE head	T/B	1																									
T7	2.3 Guide arm assy	T	1																									
T6	2.3 Lid guide	T	1																									
T5	2.3 Pinch roller arm assy	T	2							1																		
T12	2.4 Idler arm	T	4	1	2	3																						
T11	2.4 Idler gear 1/2	T	5	1	2	3					4																	
T4	2.5 Main brake assy (T)	T	6	1	2	3					4	5																
T10	2.5 Reel disk (T)	T	7	1	2	3					4	5	6															
T16	2.5 Tension arm	T	6	1	2	3					4	5																
T13	2.5 Reel disk (S)	T	7	1	2	3					4	5			6													
T15	2.5 Tension arm base	T	7	1	2	3					4	5			6													
-	- T-up head	T	8	1	2	3					4	5			6	7												
-	- T-up lever	T	8	1	2	3					4	5			6	7												
T8	2.5 Brake lever	T	8	1	2	3					4	5	6	7														
T14	2.5 Rec safety lever	T	7	1	2	3	4	5	6																			
B12	2.6 Press lever	B	1																									
B11	2.6 Control cam	B	2														1											
B13	2.6 Capstan brake assy	B	3														1	2										
B9	2.6 Loading motor assy	B	4														1	2	3									
B10	2.7 Belt	B	1																									
B14	2.7 Capstan motor	T/B	2																		1							
-	- Wire holder	T/B	1																									
B2	2.7 Fixing plate	B	1																									
B4	2.7 Load gear	B	2																			1						
B3	2.7 Loading gear assy(S)	B	3																			1	2					
B1	2.7 Loading gear assy(T)	B	4																			1	2	3				
T1	- Pole base assy(S)	T/B	4																			1	2	3				
T2	- Pole base assy(T)	T/B	5																			1	2	3	4			
-	- Load gear base	B	5																			1	2	3	4			
B5	2.7 Control plate	B	6														1	2			3	4	5					
T9	- Drive lever	T/B	10	1	2	3	4	5	6								7	8		9								
B8	2.8 Clutch unit	B	2																		1							
B15	2.8 Direct gear	B	3																		1						2	
B7	- Change lever	T/B	6								1	2									3						4	5
B6	- Tension arm lever	T/B	14	1	2	3					4	5			6	7	8	9			10	11	12			13		

2.2 Replacement of the main mechanism parts

2.2.1 Cassette holder

2.2.1.1 Removal

(1) Remove the screws (a) and (b).
(2) Hold up the top frame, cassette holder assembly, drive arm assembly and side frames (L/R) all together and remove them by releasing the hooks (a) and (b).

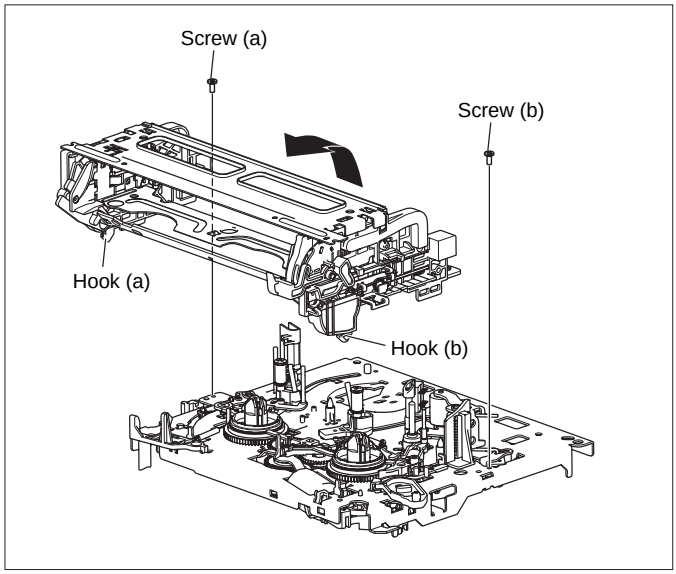


Fig. 2-2-1a

2.2.1.2 Installation (phase adjustment)

(1) Turn gear (a) of the loading motor assembly so that the main deck connects to the guide hole (a) of the drive lever.
(2) Hook the main deck to hooks (a) and (b).
(3) Place the projection of the drive lever to section (a) of the side frame (R) and install the cassette holder to the main deck. Make sure that the bosses of the side frame (L/R) connect with the holes (a) and (b) of the main deck.
(4) Secure screws (a) and (b).

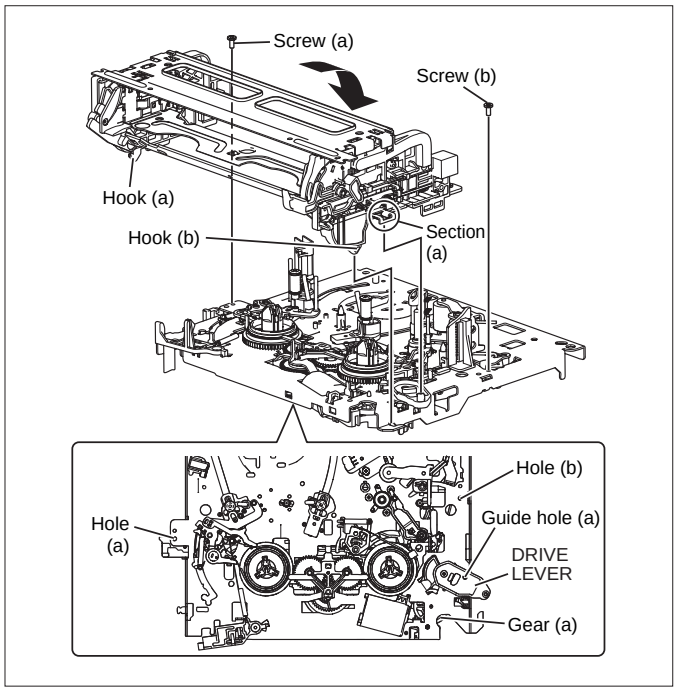


Fig. 2-2-1b

2.2.1.3 Disassembling

(1) Release hook (a) to remove the earth spring (1) from the top frame.
(2) Release the catches (a) and (b) and pull the top frame in the direction shown by the arrow (a) to remove it.
(3) Pull out the side frame (R).
(4) Pull out the cassette holder assembly and drive arm assembly from the side frame (L).

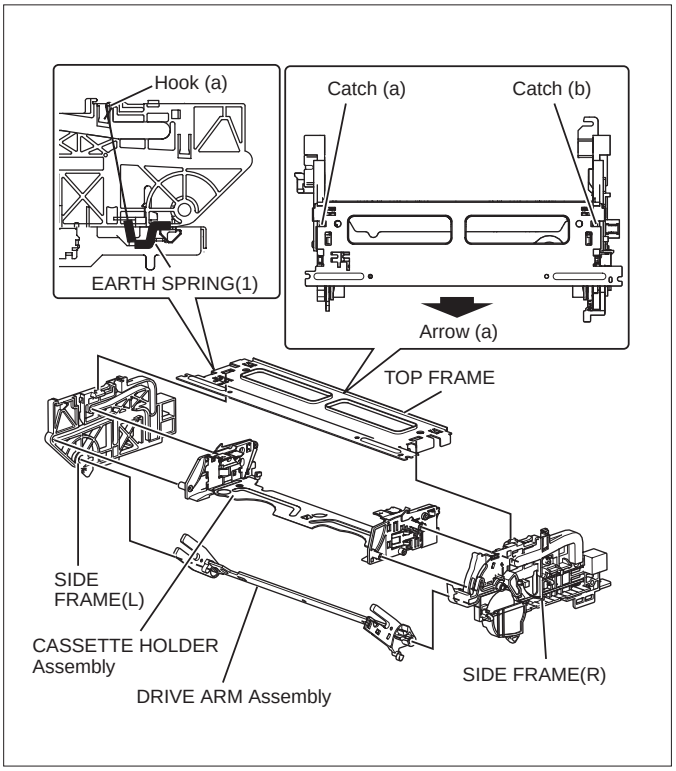


Fig. 2-2-1c

2.2.1.4 Assembling (installation and phase adjustment)

(1) Turn gear (a) of the loading motor assembly so that the main deck connects to the guide hole (a) of the drive lever.
(2) Place the projection of the drive lever on section (a) of the side frame (R) and install the side frame (R) to the main deck.
(3) Secure screw (b).
(4) Place section (b) of the drive arm on the gear of the side frame (R). Make sure that the pin of the door opener connects with section (c) of the drive arm.
(5) Place the drive arm on section (d) of the side frame (L) and install the side frame (L) on the main deck. Be sure to connect the earth spring (1) to the side frame (L).
(6) Secure screw (a).
(7) Turn gear (a) of the loading motor assembly until the drive arm is vertical.
(8) Place the slit of the side frame (L/R) at the foot of the cassette holder assembly and install the cassette holder.
(9) Place the top frame on the position guide (a) of the side frame (L/R) and push it in the direction shown by the arrow (a) for installation.
(10) Hook the earth spring (1) to the hook (a) of the top frame.

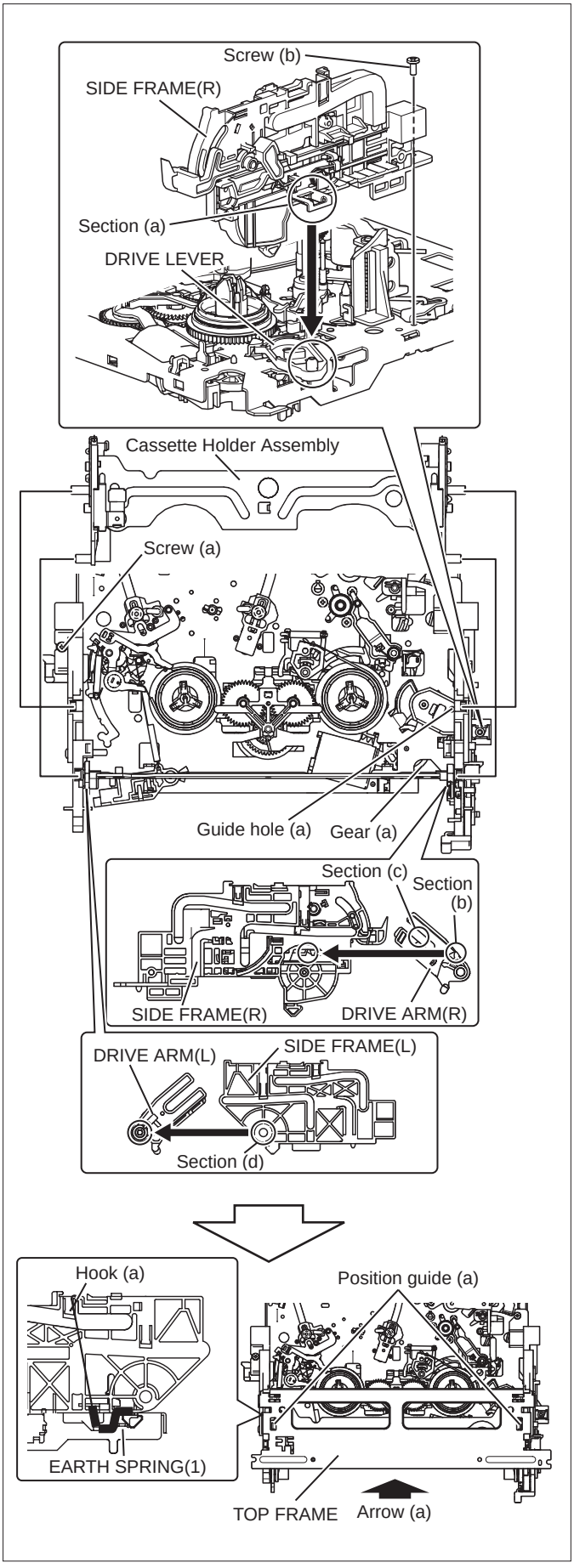


Fig. 2-2-1d

2.2.2 A/C head

2.2.2.1 Removal

(1) Remove screws (a) and (b).
(2) Remove the A/C head together with the head base.
(3) Remove the screws (c), (d) and (e) to remove the spring (a) and the A/C head from the Head base.

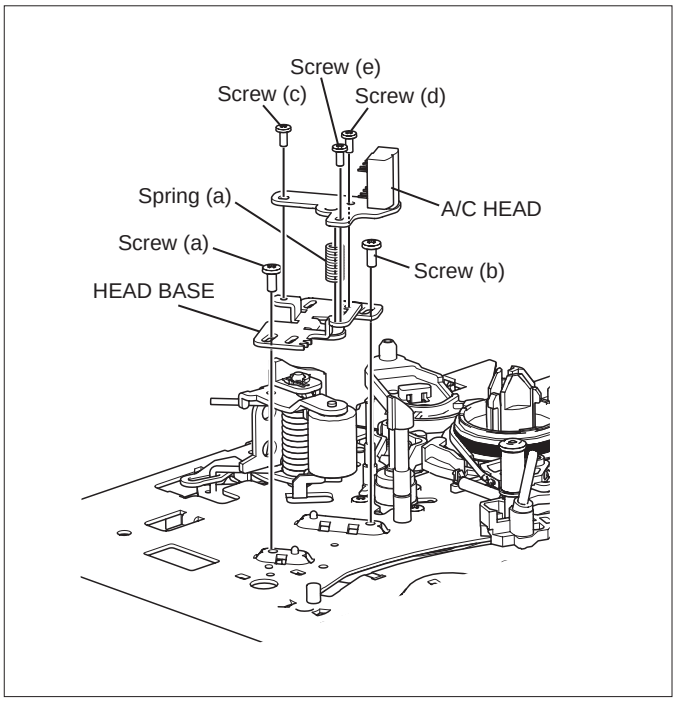


Fig. 2-2-2a

2.2.2.2 Installation (initial setting)

To install the A/C head to the head base, secure the screws in the order of (c), (d) and (e). To make the adjustment easy, temporarily elevate the A/C head.

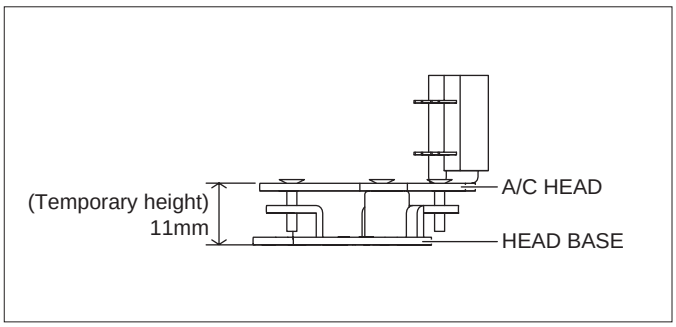


Fig. 2-2-2b

2.2.3 Guide arm, pinch roller arm

2.2.3.1 Removal

(1) Remove the spring (a) from the hook (a) and detach the guide arm assembly.
(2) Release the catch (a) to remove the lid guide.
(3) Remove the spring (b) from the hook (b) and detach the pinch roller arm assembly.

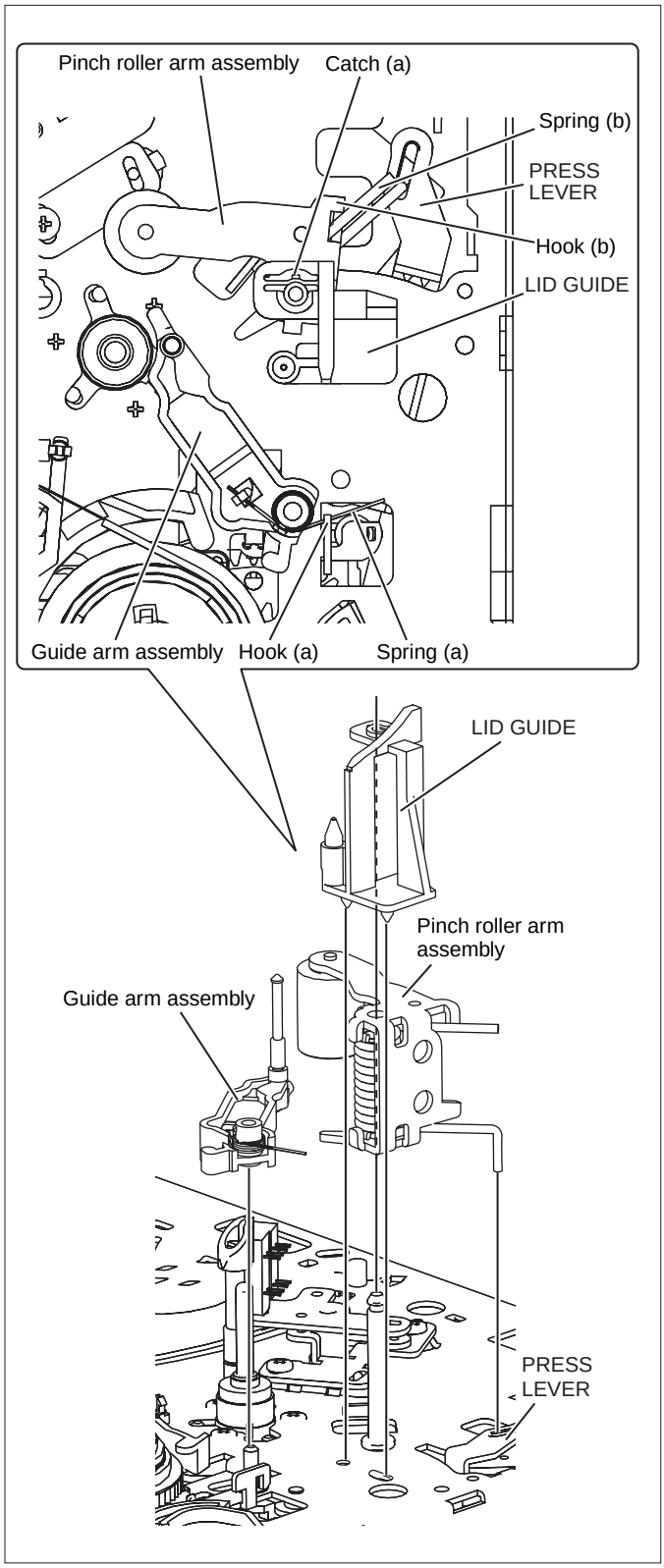


Fig. 2-2-3a

2.2.4 Idler arm, idler gear 1/2

2.2.4.1 Removal

(1) Release the catches (a) and (b) to detach the idler arm.
(2) Detach the idler gear 1/2.

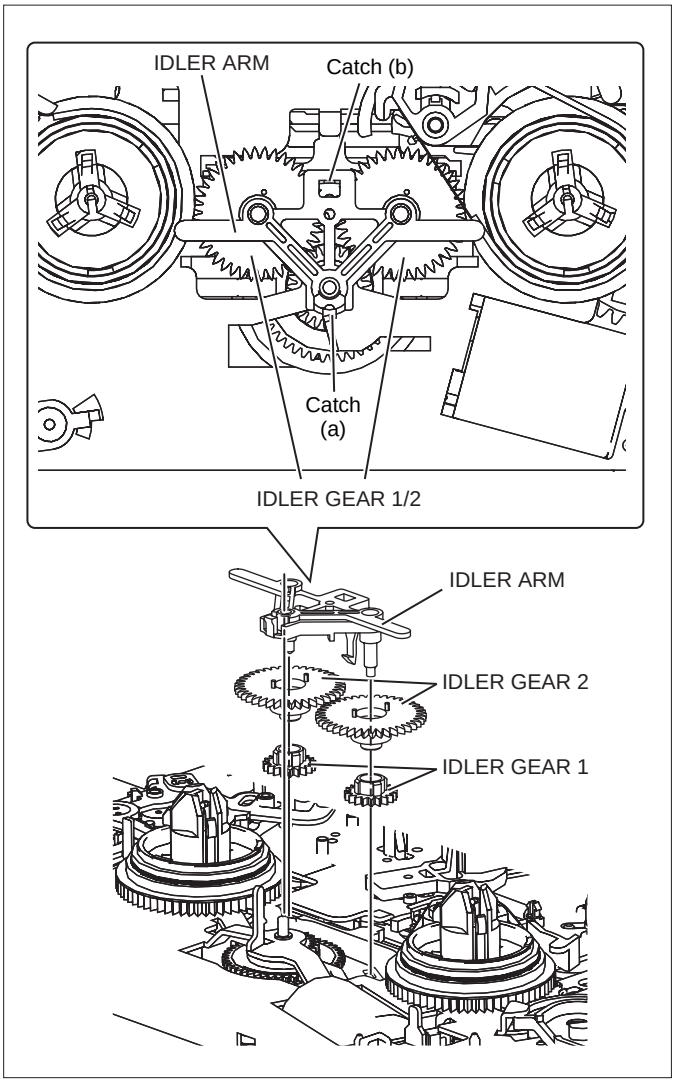


Fig. 2-2-4a

2.2.5 Main brake (T), brake lever, tension arm, reel disk (S/T), Rec safety lever

2.2.5.1 Removal

(1) Remove the spring (a). (Detach section (b) of the spring (a).)
(2) Release the catch (a) to detach the main brake (T).
(3) Release the catch (b) to detach the reel disk (T) and the spacer.
(4) Lift up and turn section (b) of the brake lever counterclockwise to remove the brake lever.
(5) Remove the spring (b) from the hook (a).
(6) Release the catch (c) to detach the tension arm.
(7) Release the catch (d) to detach the reel disk (S) and the spacer.
(8) Remove the spring (c) from the hook (b).
(9) Turn the tension arm base in the direction shown by arrow (a) to release catch (e). Place the projections of the tension arm base to the holes (a) to detach the tension arm base.
(10) While releasing the catch (f), turn the Rec safety lever counterclockwise to remove it.

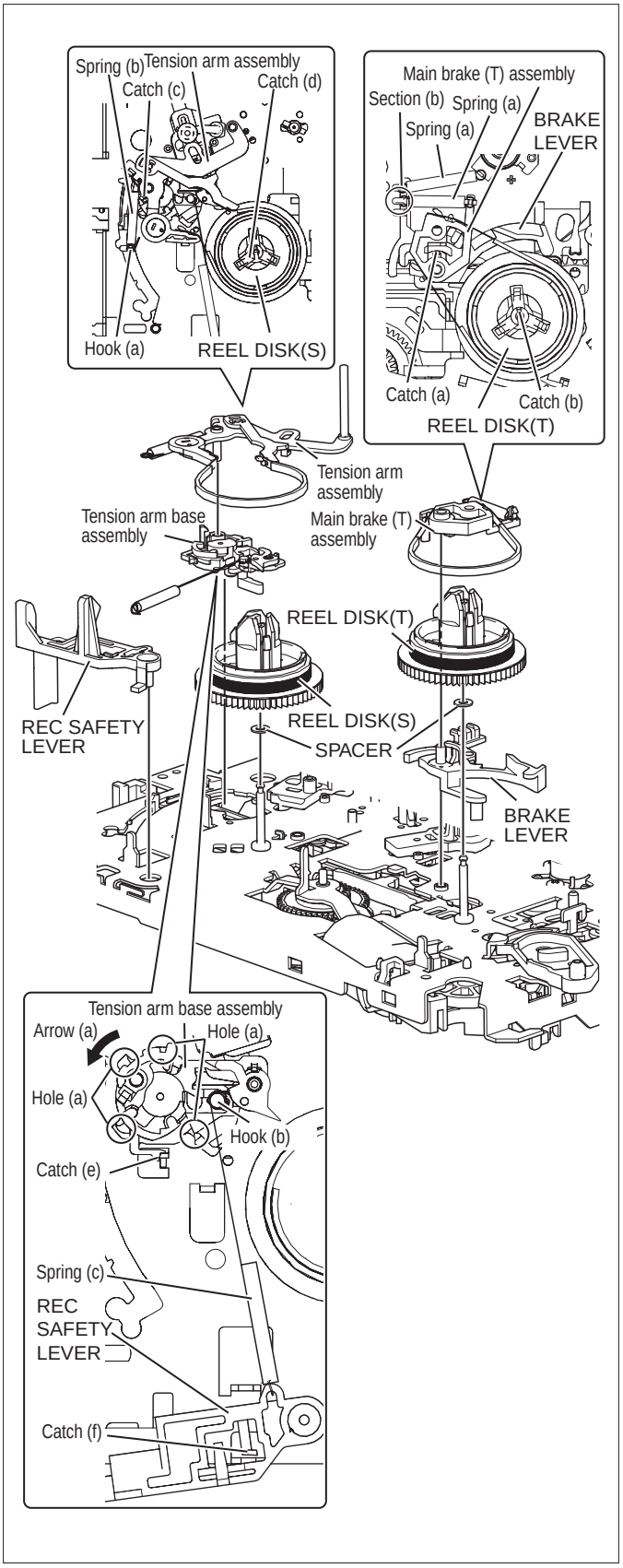


Fig. 2-2-5a

2.2.6 Press lever, control cam, capstan brake assembly, loading motor assembly

2.2.6.1 Removal

(1) Remove the slit washer (a) to detach the press lever.
(2) Release the slit washer (b) to detach the control cam.
(3) Release the catch (b) to detach the capstan brake assembly.
(4) Remove the solder (a).
(5) Remove the screw (a).
(6) Release the catches (c) and (d) to detach the loading motor assembly.

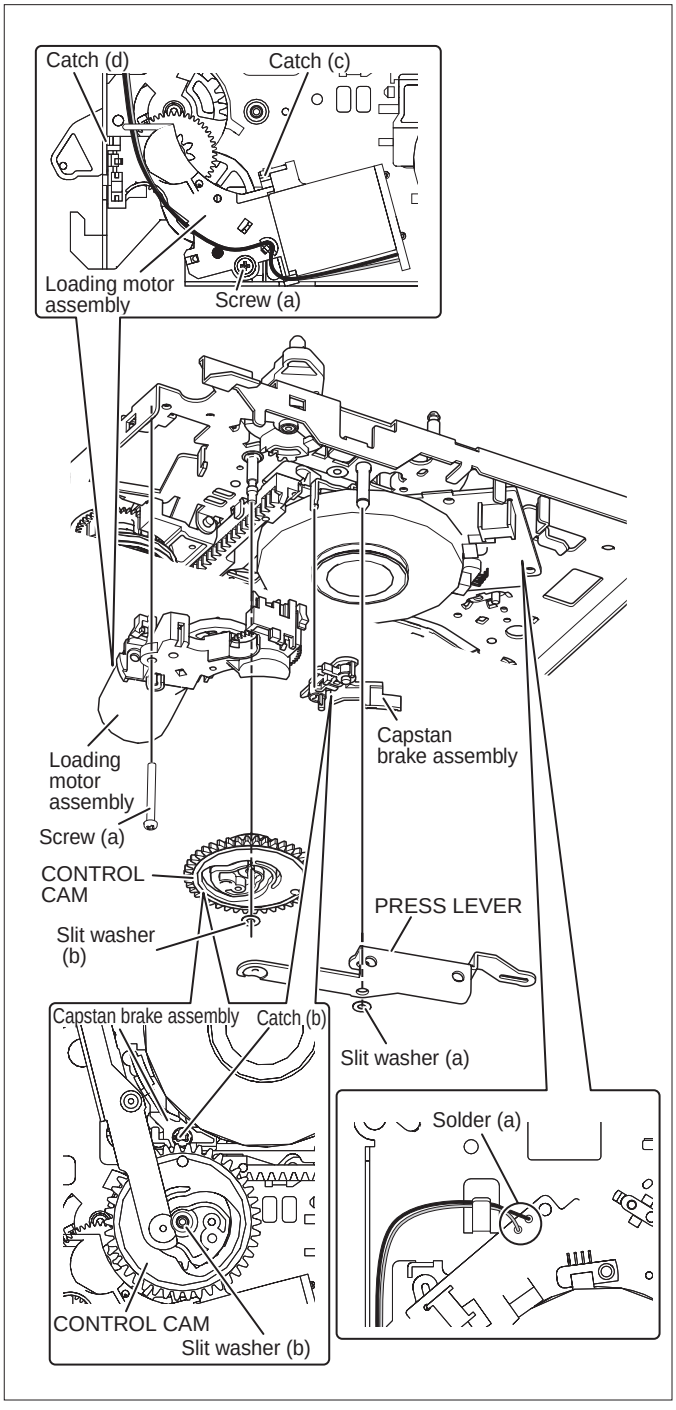


Fig. 2-2-6a

2.2.6.2 Installation (phase adjustment)

(1) Attach the loading motor assembly to the main deck.
(2) Secure the screw (a).
(3) Solder the wire to section (a).
(4) Arrange the wire along with the position guide (b).
(5) Attach the capstan brake assembly to the main deck.
(6) Place the main deck on the guide hole (a) of the control plate.
(7) Place the main deck on the guide hole (b) of the drive lever.
(8) Place the main deck no guide hole (c) of the control cam to install the control cam.
(9) Move the capstan brake in the direction shown by the arrow (a) to attach the press lever to the shaft (a). Make sure that the boss of the press lever fits in the control cam, and that the shaft (b) of the pinch roller arm assembly connects with the hole of the press lever.
(10) Attach slit washer (a) to shaft (a).

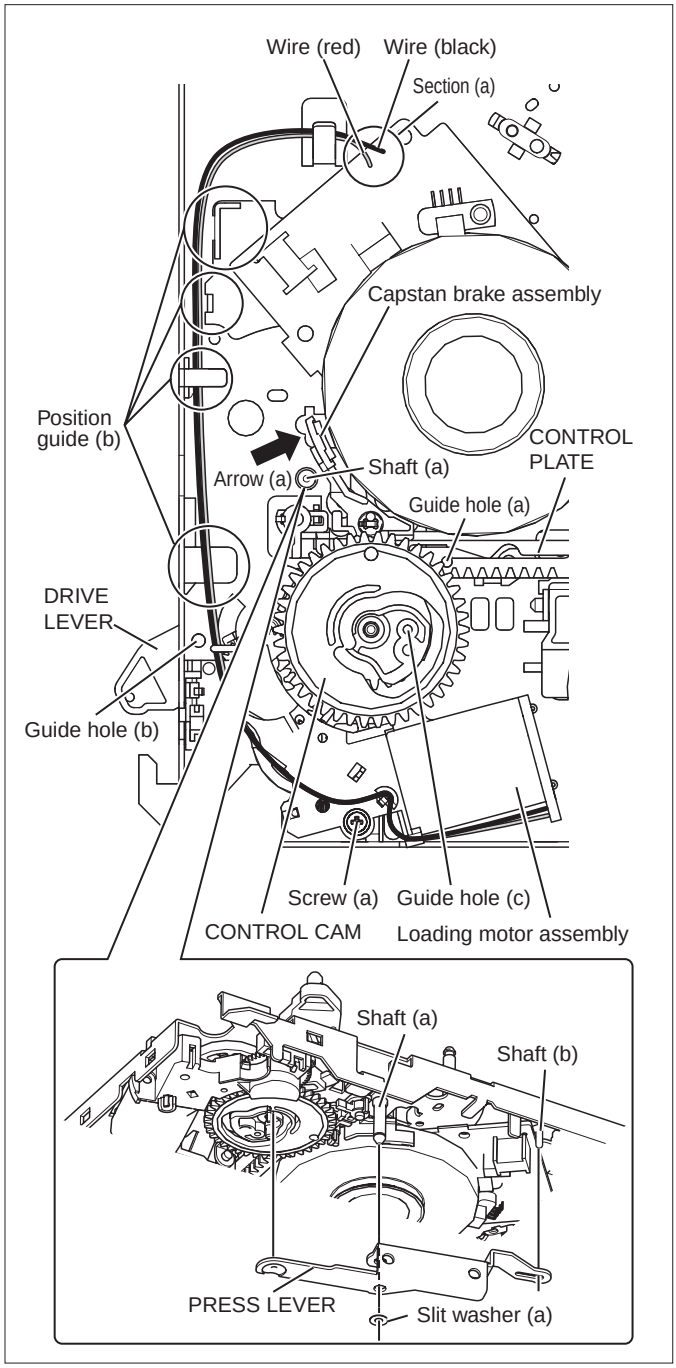


Fig. 2-2-6b

Note:

- **When replacing the worm bearing of the loading motor assembly, attach it according to the following specification. If worm bearing is not attached correctly, a mechanism noise may occur. (See Fig. 2-2-6c)**

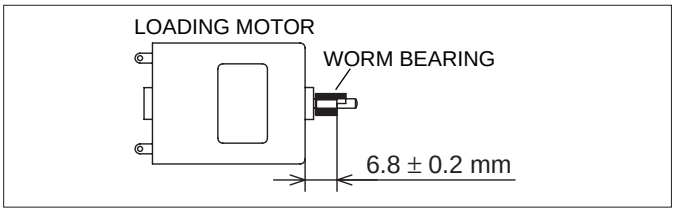


Fig. 2-2-6c

2.2.7 Capstan motor, load gear, control plate

2.2.7.1 Removal

(1) Detach the belt.
(2) Check that the FFC connector on the drum is disconnected.
(3) Release the catch (a) to remove the FFC wire.
(4) Remove the screws (a) to detach the capstan motor.
(5) Remove the screws (b) to detach the fixing plate.
(6) Release the catch (b) to detach the load gear.
(7) Turn the load gear (S/T) in the loading direction to detach it.
(8) Remove the control plate.

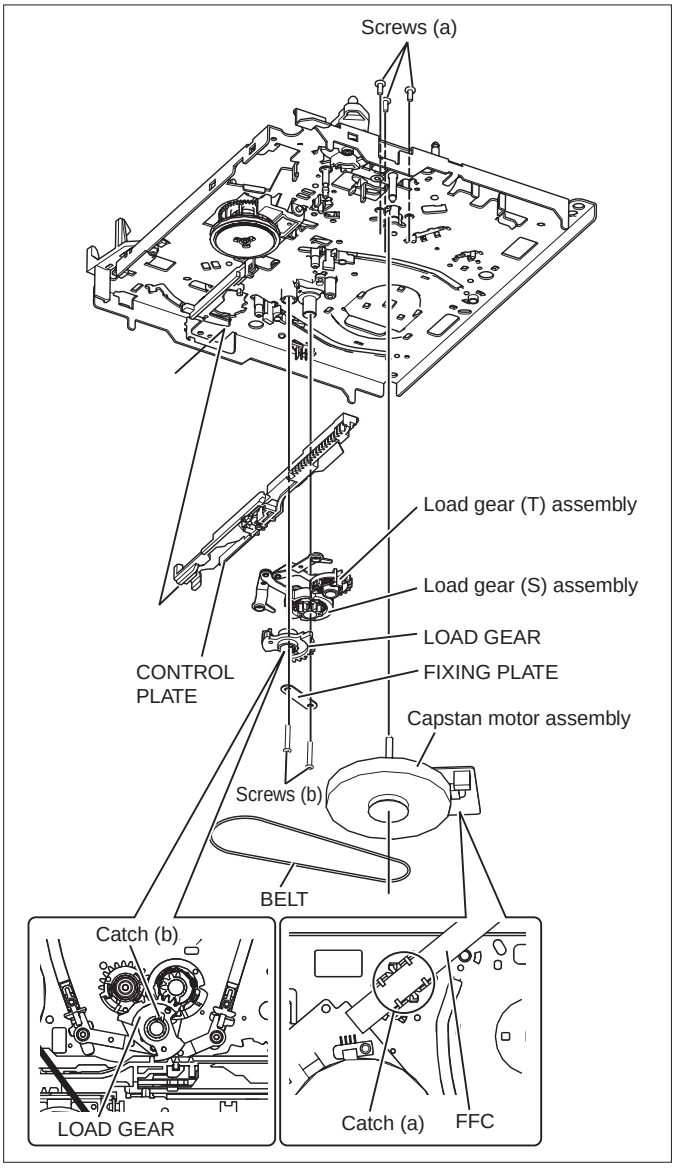


Fig. 2-2-7a

2.2.7.2 Installation (phase adjustment)

(1) Place the main deck on the guide hole (a) of the tension arm lever.
(2) Place the main deck on the guide hole (b) of the brake lever.
(3) Attach the control plate to align with the position guide (a).
(4) Place the hole (c) of the load arm (T) on the pole base (T) and the load gear (T) on the load gear base.
(5) Place the hole (d) of the load arm (S) on the pole base (S) and the load gear (S) on the load gear base. Be sure to align the guide mark (e) of the load gear (T) to that of the load gear (S).
(6) Turn the load gear (S/T) in the unloading direction to place the main deck on the guide hole (f) of the load gear (T).
(7) Place the main deck on the guide hole (g) of the control plate.
(8) Attach the load gear on the load gear base so that the control plate is placed on the edge (h) of the load gear.
(9) Place the fixing plate on the shaft of the load gear base and secure the screws (b).

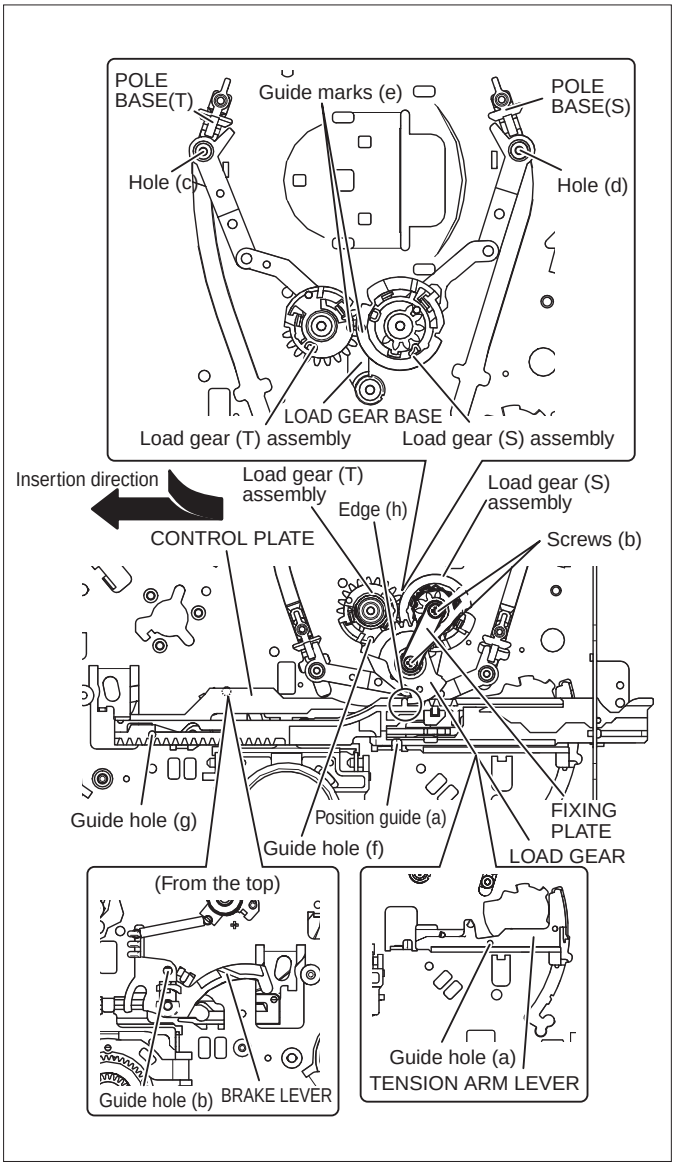


Fig. 2-2-7b

2.2.8 Clutch unit assembly, direct gear

2.2.8.1 Removal

(1) Remove the slit washer (a) to detach the clutch unit assembly.
(2) Remove the spring (a) and the direct gear.

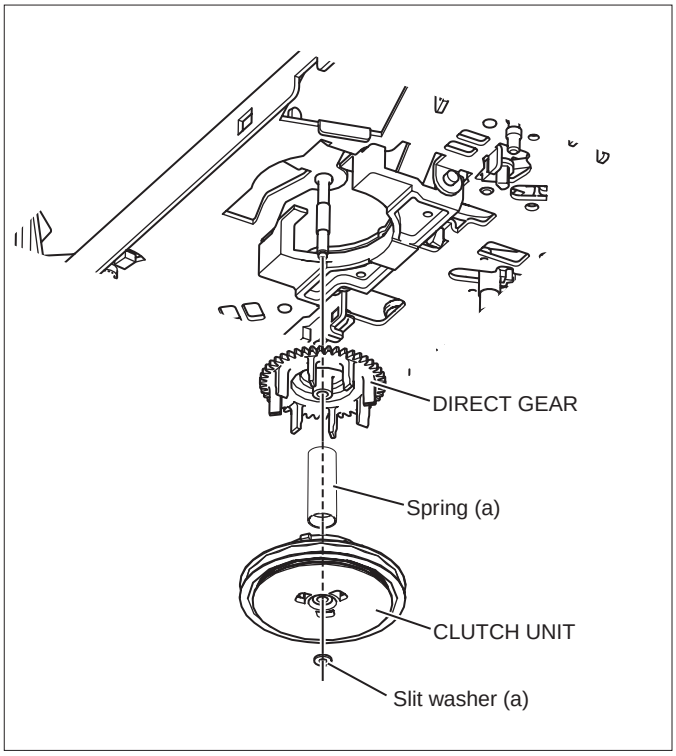
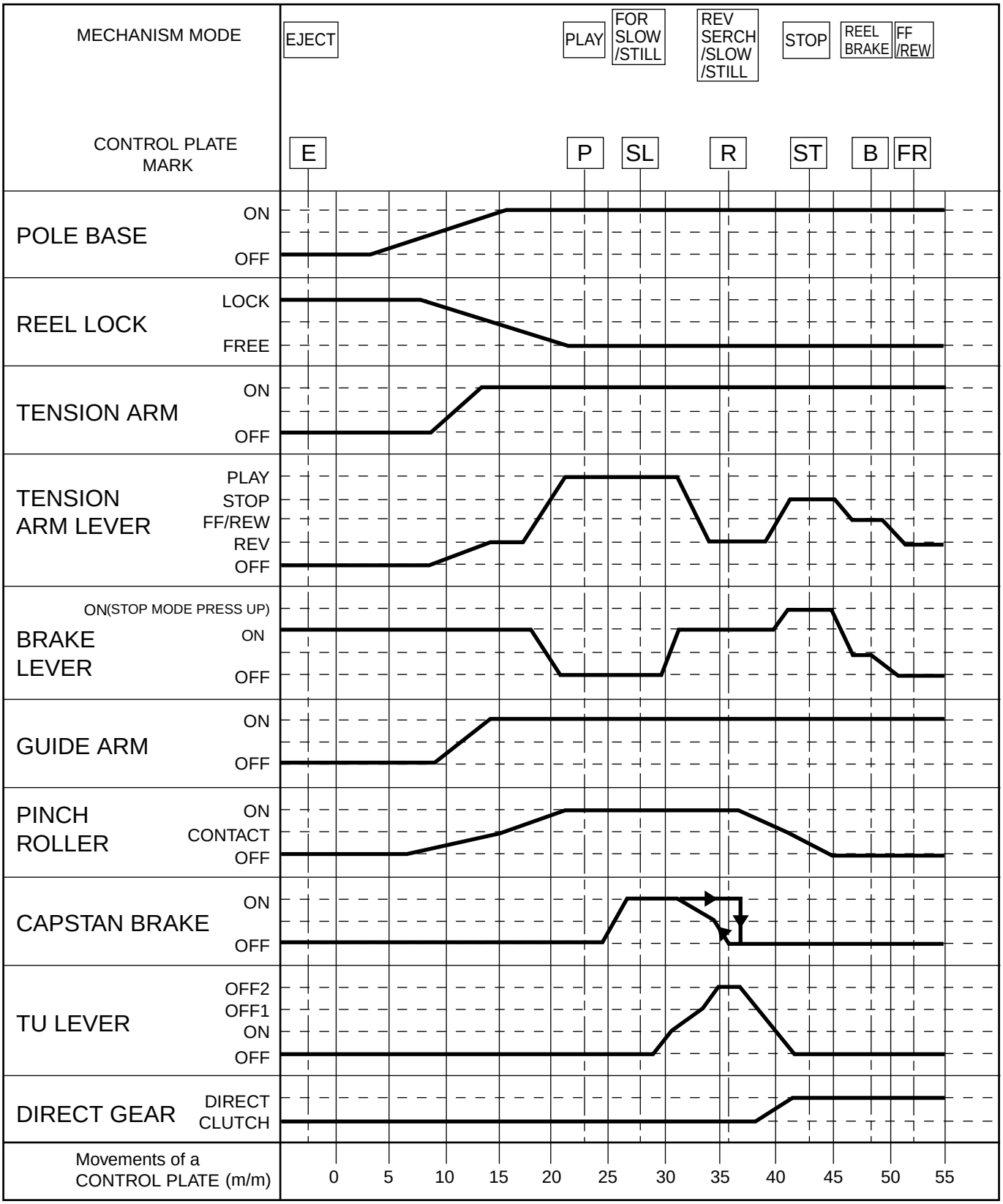


Fig. 2-2-8a

2.3 Mechanism timing chart



SECTION 3
ADJUSTMENT

3.1 Before adjustment

3.1.1 Precaution

- **The adjustments of this unit include the mechanism compatibility and electrical adjustments. During the performance of this work, be sure to observe the precautions for each type of adjustment.**
- **If there is a reference to a signal input method in the signal column of the adjustment chart, "Ext. S-input" means the Y/C separated video signal and "Ext. input" means the composite video signal input.**
- **Unless otherwise specified, all measuring points and adjustment parts are located on the Main board.**

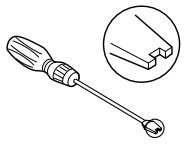
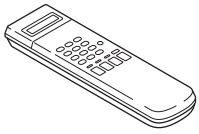
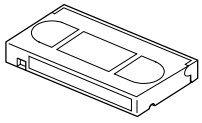
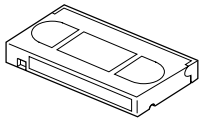
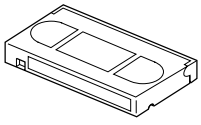
3.1.2 Required test equipments

- Color (colour) television or monitor
- Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- Signal generator: RF / IF sweep / marker
- Signal generator: stairstep, color (colour) bar [PAL]
- Recording tape
- Digit-key remote controller(provided)

3.1.3 Required adjustment tools

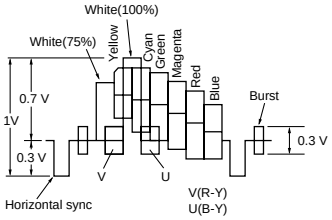
O : Used — : Not used

	Machanism compatibility adjustment	Electrical adjustment
Roller driver	O	–
Jig RCU	–	O
Back tension cassette gauge	O	–
Alignment tape(MHPE)	O	O
Alignment tape(MHPE-L)	O	O

Roller driver PTU94002	Jig RCU PTU94023B	Back tension cassette gauge PUJ48076-2
		
Alignment tape (SP, stairstep, PAL) MHPE	Alignment tape (LP, stairstep, PAL) MHPE-L	
		

3.1.4 Color (colour) bar signal, color (colour) bar pattern

• Color(colour) bar signal [PAL]



• Color(colour) bar pattern [PAL]

3.1.5 Switch settings

When adjusting this unit, set the VCR mode and switches as described below.

- **When using the Jig RCU, it is required to set the VCR to the Jig RCU mode (the mode in which codes from the Jig RCU can be received). (See SECTION 1 DISASSEMBLY.)**

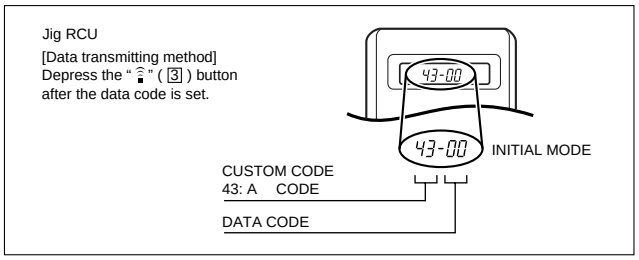


Fig. 3-1-4a Jig RCU [PTU94023B]

- **Set the switches as shown below unless otherwise specified on the relevant adjustment chart. The switches that are not listed below can be set as desired.**
  If the VCR is not equipped with the functions detailed below, setup is not required.

AUTO PICTURE/VIDEO CALIBRATION/ B.E.S.T./D.S.P.C.	OFF
PICTURE CONTROL/SMART PICTURE	NORMAL/NATURAL
VIDEO STABILIZER	OFF
TBC	ON
Digital 3R	ON
VIDEO NAVIGATION/TAPE MANAGER	OFF
BLUE BACK	OFF

3.1.6 Manual tracking mode (Auto tracking ON/OFF) setting

(1) In order to set to the manual tracking mode during tape playback, press the "SP/EP(LP)" button on the remote control unit.
  • Each press of the button switches the auto tracking ON or OFF.
  • When the auto tracking is OFF, the monitor screen displays "AT: OFF".
  • When the manual tracking mode is set, the tracking is placed at the center position.

(2) Press "channel +/-" to adjust the tracking manually.

3.2 Mechanism compatibility adjustment

Notes:

- ***Although compatibility adjustment is very important, it is not necessary to perform this as part of the normal servicing work. It will be required when you have replaced the A/C head, drum assembly or any part of the tape transport system.***
- ***To prevent damaging the alignment tape in the compatibility adjustment, prepare a cassette tape (for self-recording/play-back), perform a test on it by transporting it and making sure that the tape is not bent by the tape transport mechanisms such as in the guide rollers.(See Fig.3-2-2a)***

3.2.1 Tension pole position

Notes:

- ***This adjustment must be performed every time the tension band is replaced.***

Signal	(A)	• Back tension cassette gauge [PUJ48076-2]
Mode	(B1)	• Play back position
	(B2)	• Eject end
Adjustment part	(F)	• Adjust pin [Mechansim assembly]
Specified value	(G)	• 25 - 51 gf•cm ($2.45 - 5 \times 10^{-3}$ Nm]

(1) Play back the back tension cassette gauge (A).
(2) Check that the indicated value on the left side gauge is within the specified value (G).
(3) If the indicated value is not within the specified value (G), perform the adjustment in a following procedure.(See Fig.3-2-1a.)
  1) Remove the top frame, cassette holder and side frames (L/R) all together. (See "section 2 mechanism".)
  2) Rotate the loading motor gear to move the control plate so that the triangular stamping to the left of the "P" stamping is aligned with the stamping (a) on the main deck. This positioning is mode (B1).
  3) Adjust by turning the adjustment pin so that the tip of the tension arm is aligned with the stamping (b) on the main deck.
  4) Rotate the reel disk (S) by about one turn clockwise and make sure that the round hole of the adjustment pin is located in the "OK" range.
  If it is outside this range, restart the adjustment from the beginning.

  After completion of the adjustment, rotate the loading gear motor to return it to the mode (B2) position.

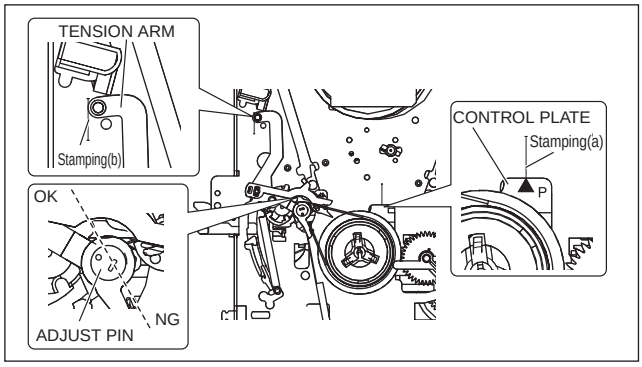


Fig. 3-2-1a

3.2.2 FM waveform linearity

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, PAL) [MHPE] • Alignment tape(LP, stairstep, PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Guide roller [Mechanism assembly]
Specified value	(G)	• Flat V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Set the VCR to the manual tracking mode.
(4) Make sure that there is no significant level drop of the V.PB FM waveform caused by the tracking operation, with its generally parallel and linear variation ensured. Perform the following adjustments when required. (See Fig. 3-2-2b.)
(5) Reduce the V.PB FM waveform by the tracking operation. If a drop in level is found on the left side, turn the guide roller of the pole base assembly (supply side) with the roller driver to make the V.PB FM waveform linear.
  If a drop in level is on the right side, likewise turn the guide roller of the pole base assembly (take-up side) with the roller driver to make it linear. (See Fig. 3-2-2b.)
(6) Make sure that the V.PB FM waveform varies in parallel and linearly with the tracking operation again. When required, perform fine-adjustment of the guide roller of the pole base assembly (supply or take-up side).
(7) Unload the cassette tape once, play back the alignment tape (A1) again and confirm the V.PB FM waveform.
(8) After adjustment, confirm that the tape wrinkling does not occur at the roller upper or lower limits. (See Fig. 3-2-2a.)

[Perform adjustment step (9) only for the models equipped with SP mode and EP (or LP) mode.]

(9) Repeat steps (1) to (8) by using the alignment tape (A2).

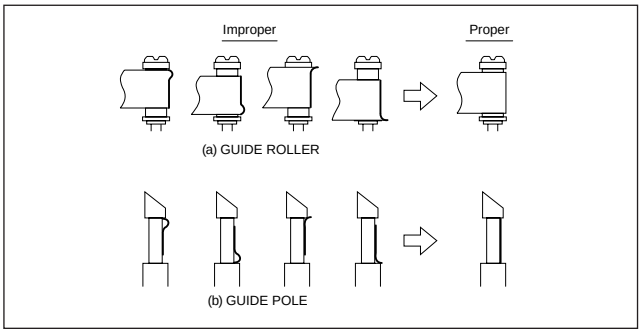


Fig. 3-2-2a

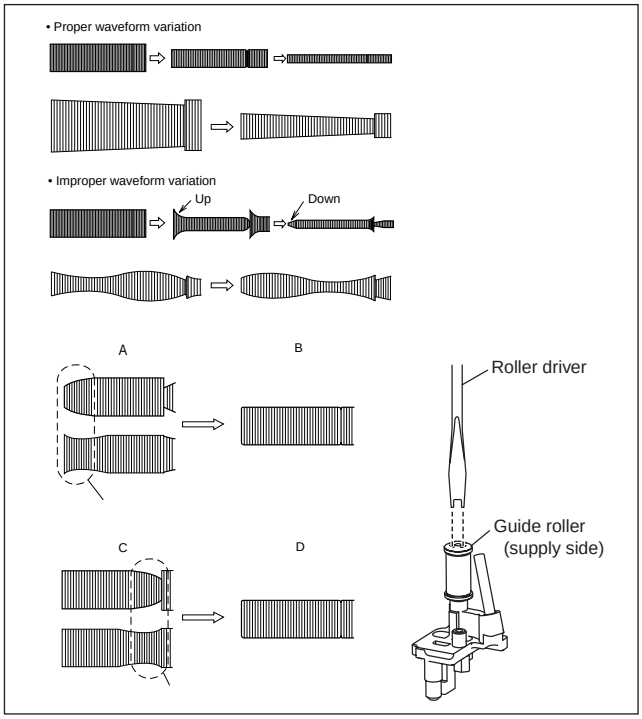


Fig. 3-2-2b

3.2.3 Height and tilt of the A/C head

Note:

- ***Set a temporary level of the height of the A/C head in advance to make the adjustment easier after the A/C head has been replaced. (See "section 2 mechanism".)***

Signal	(A)	• Alignment tape(SP, stairstep, PAL) [MHPE]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• AUDIO OUT terminal • TP4001 (CTL. P)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head [Mechanism assembly]
Specified value	(G)	• Maximum waveform

(1) Play back the alignment tape (A).
(2) Apply the external trigger signal to D.FF (E), to observe the AUDIO OUT waveform and Control pulse waveform at the measuring points (D1) and (D2) in the ALT mode.
(3) Set the VCR to the manual tracking mode.
(4) Adjust the AUDIO OUT waveform and Control pulse waveform by turning the screws (1), (2) and (3) little by little until both waveforms reach maximum. The screw (1) and (3) are for adjustment of tilt and the screw (2) for azimuth.

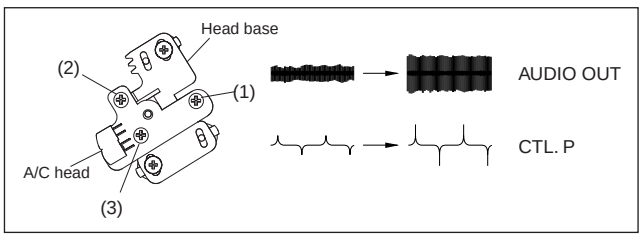


Fig. 3-2-3a

3.2.4 A/C head phase (X-value)

Signal	(A1) (A2)	• Alignment tape(SP, stairstep, PAL) [MHPE] • Alignment tape(LP, stairstep, PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D)	• TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• A/C head base [Mechanism assembly]
Specified value	(G)	• Maximum V.PB FM waveform
Adjustment tool	(H)	• Roller driver [PTU94002]

(1) Play back the alignment tape (A1).
(2) Apply the external trigger signal to D.FF (E), to observe the V.PB FM waveform at the measuring point (D).
(3) Set the VCR to the manual tracking mode.
(4) Loosen the screws (4) and (5), then set the Roller driver to the innermost projected part of the A/C head. (See Fig. 3-2-4a.)
(5) Rotate the roller driver so that the A/C head comes closest to the capstan. From there, move the A/C head back gradually toward the drum until the point where the FM waveform is maximized for the second time, and then tighten the screws (4) and (5) temporarily.
(6) Play an alignment tape (A2) and set to the manual-tracking mode.
(7) Fine-adjust A/C head base position to maximize the FM waveform, and then tighten the screws (4) and (5) firmly.
(8) Play alignment tapes (A1) and (A2) and confirm that the FM waveforms are maximized when the tracking is at the center position.

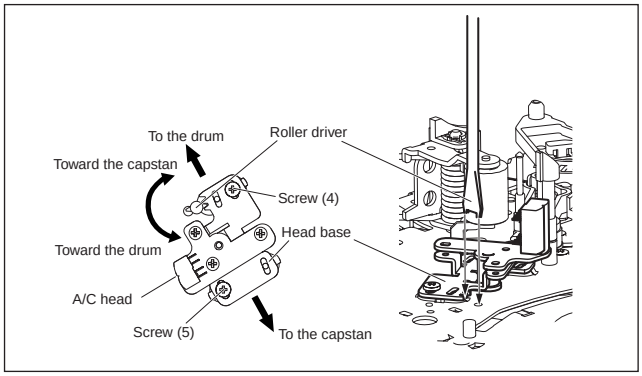


Fig. 3-2-4a

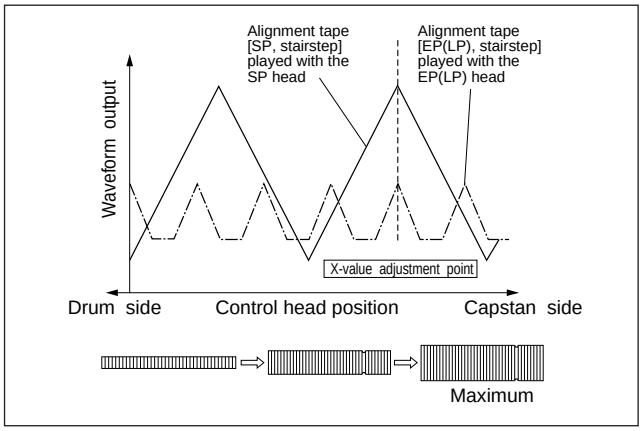


Fig. 3-2-4b

3.3 Electrical adjustment

Note:
The following adjustment procedures are not only necessary after replacement of consumable mechanical parts or board assemblies, but are also provided as references to be referred to when servicing the electrical circuitry.
In case of trouble with the electrical circuitry, always begin a service by identifying the defective points by using the measuring instruments as described in the following electrical adjustment procedures. After this, proceed to the repair, replacement and/or adjustment. If the required measuring instruments are not available in the field, do not change the adjustment parts (variable resistor, etc.) carelessly.

3.3.1 Servo circuit

3.3.1.1 Switching point

Signal	(A1) (A2)	• Stairstep signal • Alignment tape (LP,stairstep,PAL) [MHPE-L]
Mode	(B)	• PB
Equipment	(C)	• Oscilloscope
Measuring point	(D1) (D2)	• VIDEO OUT terminal (75Ω terminated) • TP106 (PB. FM)
External trigger	(E)	• TP111 (D.FF)
Adjustment part	(F)	• Jig RCU: Code “5A”
Specified value	(G)	• 6.5 ± 0.5H
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Play back the signal (A1) of the alignment tape (A2).
(2) Apply the external trigger signal to D.FF (E) to observe the VIDEO OUT waveform and V.PB FM waveform at the measuring points (D1) and (D2).
(3) Set the VCR to the manual tracking mode.
(4) Adjust tracking so that the V.PB FM waveform becomes maximum.
(5) Set the VCR to the Auto adjust mode by transmitting the code (F) from the Jig RCU. When the VCR enters the stop mode, the adjustment is completed.
(6) If the VCR enters the eject mode, repeat steps (1) to (5) again.
(7) Play back the alignment tape (A2) again, confirm that the switching point is the specified value (G).

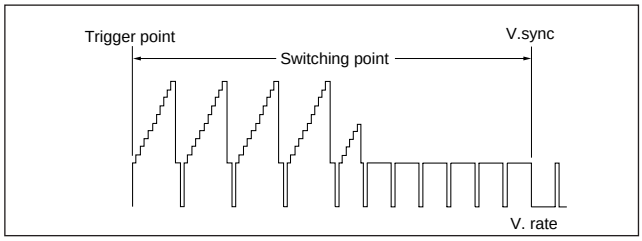


Fig. 3-3-1-1a Switching point

3.3.1.2 Slow tracking preset

Signal	(A1) (A2)	• Ext. input • Color (colour) bar signal [PAL]
Mode	(B1) (B2)	• VHS SP • VHS LP
Measuring point	(D)	• TV-Monitor
Adjustment part	(F)	• Jig RCU: Code “71“ or “72”
Specified value	(G)	• minimum noise
Adjustment tool	(H)	• Jig RCU [PTU94023B]

(1) Record the signal (A2) in the mode (B1), and play back the recorded signal.
(2) Set the VCR to the manual tracking mode.
(3) Set the VCR to the FWD slow (+1/6x) mode.
(4) Transmit the code (F) from the Jig RCU to adjust so that the noise bar becomes the specified value (G) on the TV monitor in the slow mode.
(5) Set the VCR to the Stop mode.
(6) Confirm that the noise bar is (G) on the TV monitor in the slow mode.
(7) Repeat steps (3) to (6) in the REV slow (–1/6x) mode.
(8) Repeat steps (1) to (7) in the mode (B2).

Note:
- ***For FWD slow (+1/6x) playback, transmit the code “08” from the Jig RCU to enter the slow playback mode, and transmit the code “D0” for REV slow (–1/6x) mode.***

3.3.2 Syscon circuit [HR-J690EU/J790EU]

Note:
- ***When perform this adjustment, remove the Mechanism assembly.***

3.3.2.1 Timer clock

Signal	(A)	• No signal
Mode	(B)	• EE
Equipment	(C)	• Frequency counter
Measuring point Short point	(D1) (D2) (D3)	• IC3001 pin 44 • IC3001 pin 103 • C3054 + and –
Adjustment part	(F)	• C3025 (TIMER CLOCK)
Specified value	(G)	• 1024.008 ± 0.001 Hz (976.5549 ± 0.0010 µsec)

(1) Connect the frequency counter to the measuring point (D1).
(2) Connect the short wire between the short point (D2) and Vcc (5V).
(3) Short the leads of capacitor (D3) once in order to reset the microprocessor of the Syscon.
(4) Disconnect the short wire between the short point (D2) and Vcc then connect it again.
(5) Adjust the Adjustment part (F) so that the output frequency becomes the specified value (G).

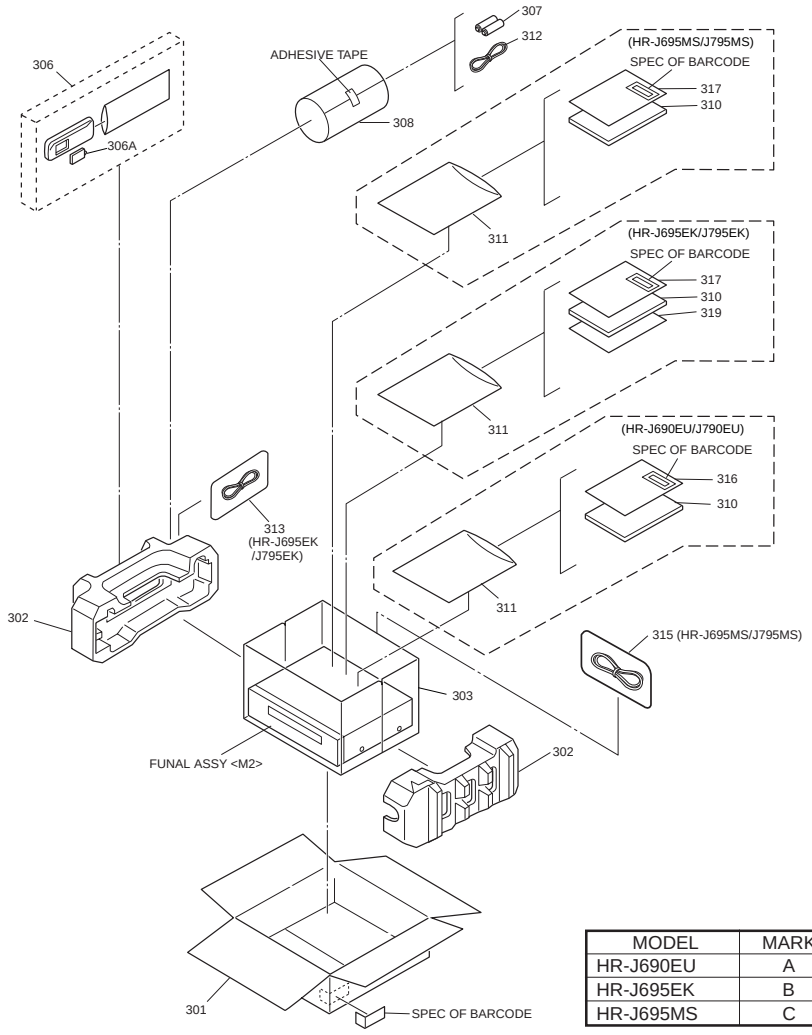
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.



MODEL	MARK	MODEL	MARK
HR-J690EU	A	HR-J790EU	D
HR-J695EK	B	HR-J795EK	E
HR-J695MS	C	HR-J795MS	F

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

PACKING AND ACCESSORY ASSEMBLY <M1>

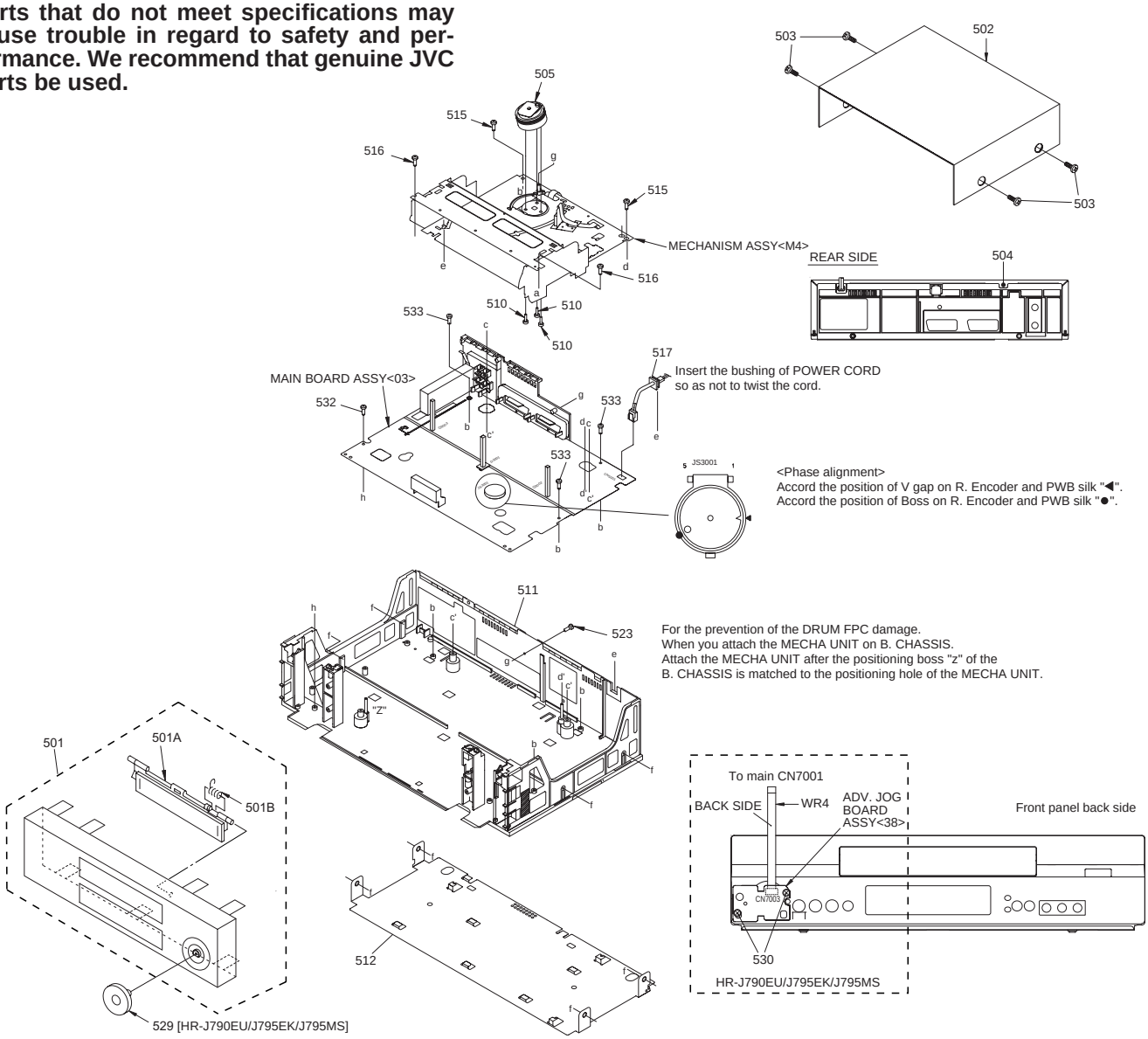
	301	LP30855-003A	PACKING CASE
	302	LP30909-001C	CUSHION ASSY
	303	PQM30021-93	POLY BAG
	306	LP20878-014A	REMOTE CONTROLLER
	306A	LP40610-003A	COVER(BATTERY)
	307	–	BATTERY,X2("R6"TYPE)
	308	QPC02202230P	POLY BAG
⚠	310	LPT0627-001B	INST.BOOK(EN),D
⚠		LPT0627-002B	INST.BOOK(GE),D
⚠		LPT0627-003A	INST.BOOK(FR),D
⚠		LPT0627-004A	INST.BOOK(DU),D
⚠		LPT0627-005A	INST.BOOK(SP),D
⚠		LPT0627-006A	INST.BOOK(IT),D
⚠		LPT0627-007A	INST.BOOK(DA),D
⚠		LPT0627-008A	INST.BOOK(FI),D
⚠		LPT0627-009A	INST.BOOK(SW),D
⚠		LPT0627-010A	INST.BOOK(NO),D
⚠		LPT0627-011A	INST.BOOK(PT),D
⚠		LPT0627-012A	INST.BOOK(GR),D
⚠		LPT0627-013A	INST.BOOK(CZ),D
⚠		LPT0627-014A	INST.BOOK(PO),D
⚠		LPT0627-015A	INST.BOOK(HU),D

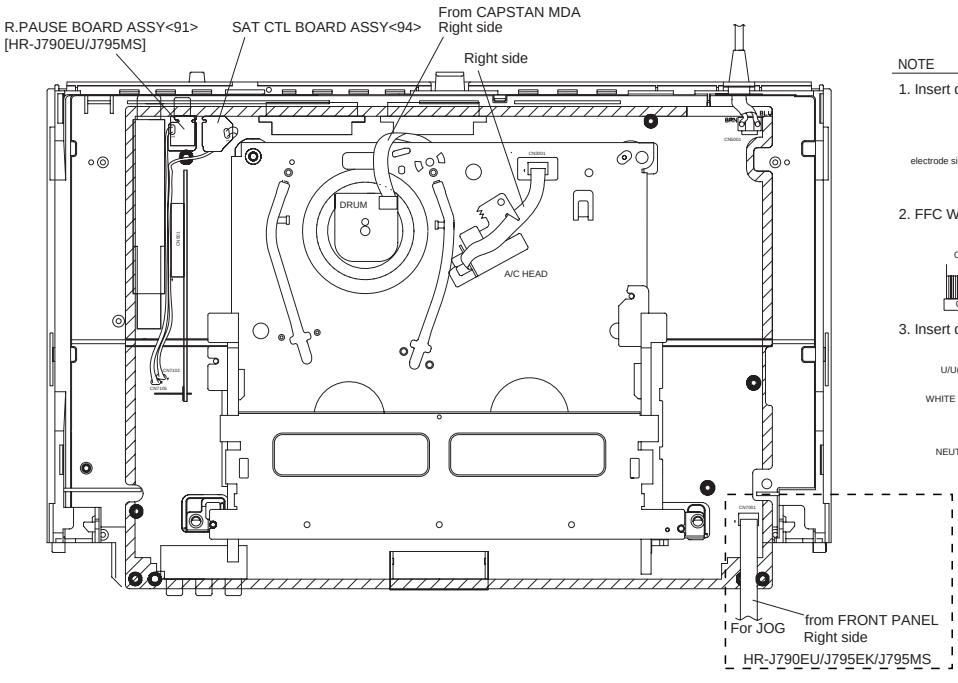
#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	⚠		LPT0628-001A	INST.BOOK(EN),A
	⚠		LPT0628-002A	INST.BOOK(GE),A
	⚠		LPT0628-003A	INST.BOOK(FR),A
	⚠		LPT0628-004A	INST.BOOK(DU),A
	⚠		LPT0628-005A	INST.BOOK(SP),A
	⚠		LPT0628-006A	INST.BOOK(IT),A
	⚠		LPT0628-007A	INST.BOOK(DA),A
	⚠		LPT0628-008A	INST.BOOK(FI),A
	⚠		LPT0628-009A	INST.BOOK(SW),A
	⚠		LPT0628-010A	INST.BOOK(NO),A
	⚠		LPT0628-011A	INST.BOOK(PT),A
	⚠		LPT0628-012A	INST.BOOK(GR),A
	⚠		LPT0628-013A	INST.BOOK(CZ),A
	⚠		LPT0628-014A	INST.BOOK(PO),A
	⚠		LPT0628-015A	INST.BOOK(HU),A
	⚠		LPT0629-001A	INST.BOOK(EN),E
	⚠		LPT0630-001A	INST.BOOK(EN),B
	⚠		LPT0631-001B	INST.BOOK(FR),F
	⚠		LPT0632-001A	INST.BOOK(FR),C
		311	QPC02503530P	POLY BAG
		312	PEAC0300-02	RF CABLE
		313	QAL0095-005	LED CABLE ASSY,B,E
		315	QAM0238-003	PERI CABLE,C,F
		316	BT-54013-2	WARRANTY CARD,A,D
		317	BT-54008-2	GUARANTY CARD,B,C,E,F
		319	LYT0194-001B	Q.CARD(JUK),B,E

5.2 FINAL ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

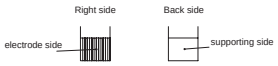
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.





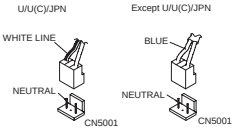
NOTE

1. Insert direction of FCC WIRE as follows.



2. FFC WIRE and DRUM FPC WIRE should be insert as follows.

3. Insert direction of POWER CORD.

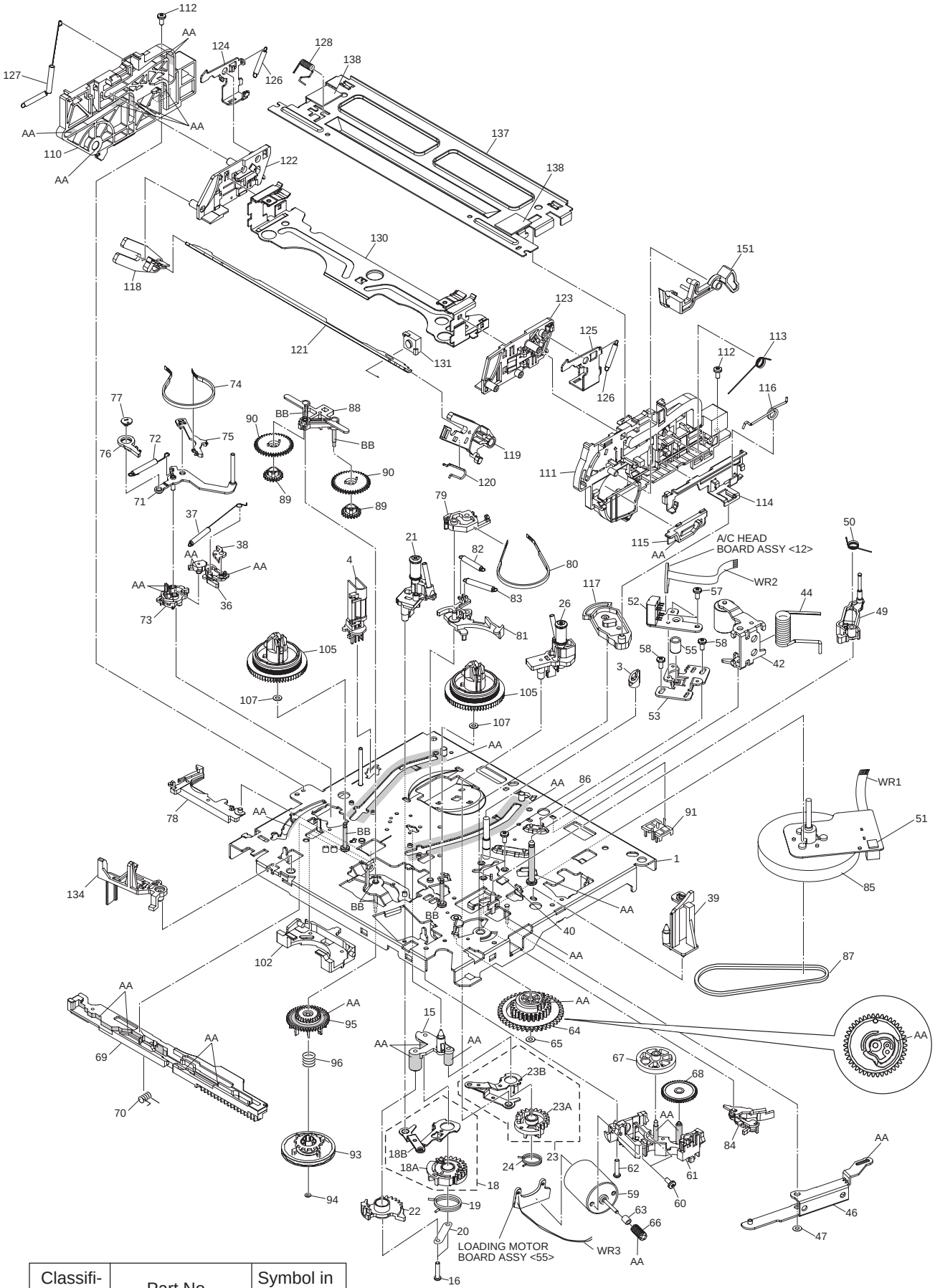


#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
**********				

FINAL ASSEMBLY <M2>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	⚠	501	LP10427-006H	FRONT PANEL ASSY,D
			LP10427-007G	FRONT PANEL ASSY,E
			LP10427-008F	FRONT PANEL ASSY,F
			LP10434-001E	FRONT PANEL ASSY,A
			LP10434-004E	FRONT PANEL ASSY,B
			LP10434-006E	FRONT PANEL ASSY,C
		501A	LP20961-022B	CASSETTE DOOR
		501B	PQ46448	TORSION SPRING
	⚠	502	LP10013-051B	TOP COVER
		503	QYTDSF3010R	SCREW,X4,TOP COVER(SIDE)
		504	QYTDSF3010M	SCREW,TOP COVER(REAR)
		505	PDV2539A	DRUM ASSY,A,B,D,E
			PDV2541A	DRUM ASSY,C,F
		510	QYSPSPD3008Z	SCREW,X3,DRUM
	⚠	511	LP10108-001H	BOTTOM CHASSIS
	⚠	512	LP10014-002C	BOTTOM COVER
		515	QYTDSF4012Z	SCREW,X2,MECHA
		516	QYSPSFG3010Z	SCREW,X2,MECHA
	⚠	517	QMP4A10-170	POWER CORD,A,C,D,F
	⚠		QMP51K0-170-K	POWER CORD,B,E
		523	QYTDSF3010M	SCREW,T.BOARD
		529	LP31019-005D	KNOB ASSY,D,E,F
		530	QYTPSFG2608Z	SCREW,X2,ADV.JOG,D,E,F
		532	QYTDSF3010Z	SCREW,MAIN
		533	DPSF3010Z	SCREW,X3,MAIN
		WR4	QUQ212-0414CG	FFC WIRE,ADV.JOG CN7003,D,E,F

5.3 MECHANISM ASSEMBLY <M4>



Classifi-cation	Part No.	Symbol in drawing
Grease	KYODO-SH-JB	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in **AA** and **BB** indicate lubrication and greasing areas.

MECHANISM ASSEMBLY <M4>

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
		1	LP21039-001N	MAIN DECK ASSY
		3	LP40097-002D	GUIDE POLE CAP
		4	QAH0082-001	FULL ERASE HEAD
		15	LP30958-001B	LOAD.GEAR BASE
		16	QYTPST2620Z	SCREW,X2
		18	LP40798-001A	LOAD.GEAR(SUPPLY) ASSY
		18A	LP21040-001A	LOAD.GEAR(SUPPLY)
		18B	LP40799-001A	LOAD.ARM(SUPPLY) ASSY
		19	LP40837-001A	TORSION SPRING(SUPPLY)
		20	LP40903-001A	FIXING PLATE
		21	LP40806-001D	POLE BASE ASSY(SUPPLY)
		22	LP30959-002A	LOAD GEAR
		23	LP40802-001B	LOAD.GEAR(TAKE UP)ASSY
		23A	LP21041-001B	LOAD.GEAR(TAKE UP)
		23B	LP40803-001A	LOAD.ARM(TAKE UP) ASSY
		24	LP40838-001A	TORSION SPRING(TAKE UP)
		26	LP40808-001F	POLE BASE ASSY(TAKE UP)
		36	LP21055-001E	TU LEVER
		37	LP40943-001A	TENSION SPRING
		38	LP40859-001D	T-UP HEAD
		39	LP30961-001C	LID GUIDE
		40	LP30002-0B7A	SPACER
		42	LP40810-001A	PINCH ROLLER ARM ASSY
		44	LP40840-001C	TORSION SPRING
		46	LP30963-001B	PRESS LEVER
		47	PQM30017-24	SLIT WASHER
		49	LP40813-001D	GUIDE ARM ASSY
		50	LP40841-001A	TORSION SPRING
		51	LP30002-090A	SPACER
		52	QAH0081-001	AC HEAD
		53	LP30965-001A	HEAD BASE
		55	LP40842-001A	COMPRESSION SPRING
		57	QYTSST2010Z	SCREW,X3
		58	QYTDST2606Z	SCREW,X2
		59	QAR0023-001	LOADING MOTOR
		60	QYTPSP3003Z	SCREW,X2
		61	LP21056-002F	MOTOR BRACKET
		62	QYTPST2620Z	SCREW
		63	LP40814-001B	WORM BEARING
		64	LP21044-001D	CONTROL CAM
		65	PQM30017-24	SLIT WASHER
		66	LP40815-001A	WORM GEAR
		67	LP40816-001B	HELICAL GEAR
		68	LP40817-001A	CONNECT GEAR
		69	LP10400-001H	CONTROL PLATE
		70	LP40843-001A	TORSION SPRING
		71	LP40818-001B	TENSION ARM ASSY
		72	LP40844-001C	TENSION SPRING
		73	LP21045-001D	TENSION ARM BASE
		74	LP40821-001A	TENSION BAND ASSY
		75	LP30967-001B	BAND HOLDER-1
		76	LP30968-001C	BAND HOLDER-2
		77	LP40822-002B	ADJUST PIN
		78	LP31000-005E	TENSION ARM LEVER
		79	LP21046-001C	MAIN BRAKE(TAKE UP)
		80	LP40824-001A	BAND BRAKE ASSY
		81	LP30969-002A	BRAKE LEVER
		82	LP30003-033B	TENSION SPRING
		83	LP30003-035B	TENSION SPRING
		84	LP40825-001B	CAPSTAN BRAKE ASSY
	⚠	85	QAR0204-002	CAPSTAN MOTOR
		86	QYTDSF2606M	SCREW,X3
		87	LP30005-010A	BELT,CAPSTAN MOTOR
		88	LP30970-001A	IDLER ARM
		89	LP40828-004A	IDLER GEAR 1,X2
		90	LP40829-001B	IDLER GEAR 2,X2
		91	LP31014-001A	WIRE HOLDER
		93	LP40934-001B	CLUTCH UNIT
		94	PQM30017-47	SLIT WASHER
		95	LP30973-001A	DIRECT GEAR
		96	LP40939-001A	COMP. SPRING
		102	LP30974-001B	CHANGE LEVER
		105	LP21049-001A	REEL DISK,X2
		107	LP30017-004A	SPACER,X2
		110	LP10401-001F	SIDE FRAME(L)
		111	LP10402-001F	SIDE FRAME(R)
		112	QYTDST2606Z	SCREW,X2
		113	LP40917-001C	TORSION SPRING
		114	LP30976-001D	SIDE PLATE
		115	LP30977-002D	LIMIT PLATE
		116	LP40846-001C	LIMIT SPRING
		117	LP31100-001B	DRIVE LEVER
		118	LP30978-001B	DRIVE ARM(L)
		119	LP30979-001H	DRIVE ARM(R)
		120	LP40847-001B	TORSION SPRING
		121	LP30980-001A	CONNECT PLATE
		122	LP10403-001C	SIDE HOLDER(L)
		123	LP10404-001D	SIDE HOLDER(R)
		124	LP30983-001A	LOCK LEVER(L)
		125	LP30984-001A	LOCK LEVER(R)
		126	LP40924-001C	TENSION SPRING,X2
		127	LP40856-001B	EARTH SPRING(1)
		128	LP40857-001B	EARTH SPRING(2)
		130	LP30981-001E	CASSETTE HOLDER ASSY
		131	LP31135-001A	C.H STOPPER
		134	LP21051-002C	REC SAFETY LEVER
		137	LP21052-001F	TOP FRAME
		138	LP30002-0A7A	SPACER,X2
		151	LP30985-001G	DOOR OPENER
		WR1	WJT0059-001C	E-CARD WIRE,DRUM
		WR2	WJT0067-001B	E-CARD WIRE,AC HEAD CN2001
		WR3	WJS0022-001A	E-FL/RB WIRE,ROADING MOTOR

5.4 ELECTRICAL PARTS LIST

MODEL	MARK	MODEL	MARK
HR-J690EU	A	HR-J790EU	D
HR-J695EK	B	HR-J795EK	E
HR-J695MS	C	HR-J795MS	F

⚠ REF No. PART No. PART NAME, DESCRIPTION

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MAIN BOARD ASSEMBLY <03>

PW1	LPA10160-01D1	MAIN BOARD ASSY,D
	LPA10160-02D1	MAIN BOARD ASSY,A
	LPA10160-03D1	MAIN BOARD ASSY,E
	LPA10160-04D1	MAIN BOARD ASSY,B
	LPA10160-05D1	MAIN BOARD ASSY,F
	LPA10160-06D1	MAIN BOARD ASSY,C
IC1	JCP8051-MVA	IC
IC251	LC74793	IC
IC301	LA7358	IC,C,F
IC2201	AN3651FBP	IC
IC3001	HD6432199RA43F	IC,A,D
	HD6432199RA45F	IC,B,E
	HD6432199RA47F	IC,C,F
	or HD64F2199RFA43	IC,A,D
	or HD64F2199RFA45	IC,B,E
	or HD64F2199RFA47	IC,C,F
IC3002	IC-PST3427U-X	IC
IC3003	LPN0711-006A-02	IC(EEPROM),D
	LPN0719-003A-02	IC(EEPROM),E
	LPN0725-005A-01	IC(EEPROM),A
	LPN0727-003A-04	IC(EEPROM),F
	LPN0739-003A-01	IC(EEPROM),B
	LPN0740-003A-03	IC(EEPROM),C
IC6701	MSP3417D	IC
	or MSP3417DG3	IC
	or MSP3417G	IC
IC7002	GP1U291Q	IR DETECT UNIT
	or PNA4652M00YC	IR DETECT UNIT
IC7102	MM1508XN	IC,A,C,D,F
IC7103	MM1508XN	IC,A,C,D,F
Q1	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q3	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q4	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q21	2SA1576A/QR/-X	TRANSISTOR,C,F
	or 2PA1576/R/-X	TRANSISTOR,C,F
	or 2SB1218A/QR/-X	TRANSISTOR,C,F
Q23	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q24	2SA1576A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
Q34	2SA1576A/QR/-X	TRANSISTOR,C,F
	or 2SB1218A/QR/-X	TRANSISTOR,C,F
	or 2PA1576/R/-X	TRANSISTOR,C,F
Q38	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q41	DTC144WU	DIGI TRANSISTOR,A,C,D,F
	or PDTC144WU	DIGI TRANSISTOR,A,C,D,F
	or RN1309	DIGI TRANSISTOR,A,C,D,F
	or UN521E	DIGI TRANSISTOR,A,C,D,F
Q301	2SB1218A/QR/-X	TRANSISTOR,C,F
	or 2PA1576/R/-X	TRANSISTOR,C,F
	or 2SA1576A/QR/-X	TRANSISTOR,C,F
Q302	UN511E	DIGI TRANSISTOR,C,F
	or RN2309	TRANSISTOR,C,F
	or DTA144WU	DIGI TRANSISTOR,C,F
	or PDTA144WU	DIGI TRANSISTOR,C,F
Q2001	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2002	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2003	DTA144WU	DIGI TRANSISTOR
	or PDTA144WU	DIGI TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	DIGI TRANSISTOR
Q2051	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2052	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q2053	DTC144WU	DIGI TRANSISTOR
	or PDTC144WU	DIGI TRANSISTOR
	or UN521E	DIGI TRANSISTOR
	or RN1309	DIGI TRANSISTOR
Q2054	2SA1576A/QR/-X	TRANSISTOR
	or 2SB1218A/QR/-X	TRANSISTOR
	or 2PA1576/R/-X	TRANSISTOR
Q2055	DTC144WU	DIGI TRANSISTOR
	or PDTC144WU	DIGI TRANSISTOR
	or RN1309	DIGI TRANSISTOR
	or UN521E	DIGI TRANSISTOR
Q2061	2SC4081/QRS/-X	TRANSISTOR,D,F
	or 2SD1819A/QRS/-X	TRANSISTOR,D,F
	or 2PC4081/R/-X	TRANSISTOR,D,F
Q2062	2SA1576A/QR/-X	TRANSISTOR,D,F
	or 2SB1218A/QR/-X	TRANSISTOR,D,F
	or 2PA1576/R/-X	TRANSISTOR,D,F
Q2063	DTC144WU	DIGI TRANSISTOR,D,F
	or PDTC144WU	DIGI TRANSISTOR,D,F
	or RN1309	DIGI TRANSISTOR,D,F
	or UN521E	DIGI TRANSISTOR,D,F
Q2201	DTA144WU	DIGI TRANSISTOR
	or PDTA144WU	DIGI TRANSISTOR
	or RN2309	TRANSISTOR
	or UN511E	DIGI TRANSISTOR
Q2202	DTC144WU	DIGI TRANSISTOR
	or PDTC144WU	DIGI TRANSISTOR
	or RN1309	DIGI TRANSISTOR
	or UN521E	DIGI TRANSISTOR
Q2203	2SC4081/QRS/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
Q2204	2SC4081/QRS/-X	TRANSISTOR
	or 2PC4081/R/-X	TRANSISTOR
	or 2SD1819A/QRS/-X	TRANSISTOR
Q2255	DTC114EU	DIGI TRANSISTOR,A,C,D,F
	or PDTC114EU	DIGI TRANSISTOR,A,C,D,F
	or UN5211	DIGI TRANSISTOR,A,C,D,F

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
			or RN1302	DIGI TRANSISTOR,A,C,D,F
		Q3003	PTZ-NV16A	PHOTO TRANSISTOR
		Q3004	2SD1819A/QRS/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
		Q3005	2SD1819A/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SC4081/QRS/-X	TRANSISTOR
		Q3007	UN521E	DIGI TRANSISTOR
			or DTC144WU	DIGI TRANSISTOR
			or PDTC144WU	DIGI TRANSISTOR
			or RN1309	DIGI TRANSISTOR
		Q4001	UN5211	DIGI TRANSISTOR
			or RN1302	DIGI TRANSISTOR
			or DTC114EU	DIGI TRANSISTOR
			or PDTC114EU	DIGI TRANSISTOR
		Q5101	2SK2632-CB14	POWER MOS FET
			or 2SK2632	POWER MOS FET
			or 2SK2129	POWER MOS FET
			or 2SK2129-LT	POWER MOS FET
		Q5102	2SD2144S/UV/-T	TRANSISTOR
		Q5301	2SC1740S/RS/-T	TRANSISTOR
			or 2SC3199/YG/-T	TRANSISTOR
	⚠	Q5304	2SD2144S/UV/-T	TRANSISTOR
		Q5305	DTA114EU	DIGI TRANSISTOR
			or RN2302	TRANSISTOR
			or UN5111	DIGI TRANSISTOR
			or PDTA114EU	DIGI TRANSISTOR
		Q5306	DTC114EU	DIGI TRANSISTOR
			or PDTC114EU	DIGI TRANSISTOR
			or UN5211	DIGI TRANSISTOR
			or RN1302	DIGI TRANSISTOR
		Q5307	2SD2144S/UV/-T	TRANSISTOR
	⚠	Q5321	2SD1858/QR/-T	TRANSISTOR
		Q6030	2SB1218A/RS/-X	TRANSISTOR
		Q6031	DTC114EU	DIGI TRANSISTOR
			or PDTC114EU	DIGI TRANSISTOR
			or UN5211	DIGI TRANSISTOR
			or RN1302	DIGI TRANSISTOR
		Q6032	DTC114EU	DIGI TRANSISTOR
			or PDTC114EU	DIGI TRANSISTOR
			or RN1302	DIGI TRANSISTOR
			or UN5211	DIGI TRANSISTOR
		Q7001	DTA143TU	DIGI TRANSISTOR
		Q7002	DTA143TU	DIGI TRANSISTOR
		Q7003	DTA143TU	DIGI TRANSISTOR
		Q7004	DTA143TU	DIGI TRANSISTOR
		Q7005	DTA143TU	DIGI TRANSISTOR
		Q7006	DTC143TU	DIGI TRANSISTOR
		Q7007	DTC143TU	DIGI TRANSISTOR
		Q7008	DTC143TU	DIGI TRANSISTOR
		Q7009	DTC143TU	DIGI TRANSISTOR
		Q7010	DTC143TU	DIGI TRANSISTOR
		Q7011	DTC143TU	DIGI TRANSISTOR
		Q7012	DTC143TU	DIGI TRANSISTOR
		Q7101	2SB1218A/QR/-X	TRANSISTOR
			or 2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q7102	DTC144WU	DIGI TRANSISTOR
			or PDTC144WU	DIGI TRANSISTOR
			or RN1309	DIGI TRANSISTOR

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION
			or UN521E	DIGI TRANSISTOR
		Q7103	2SC4081/QRS/-X	TRANSISTOR
			or 2PC4081/R/-X	TRANSISTOR
			or 2SD1819A/QRS/-X	TRANSISTOR
		Q7104	2SB1218A/QR/-X	TRANSISTOR
			or 2SA1576A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
		Q7106	2SB1218A/QR/-X	TRANSISTOR
			or 2PA1576/R/-X	TRANSISTOR
			or 2SA1576A/QR/-X	TRANSISTOR
		Q7107	DTC144WU	DIGI TRANSISTOR
			or RN1309	DIGI TRANSISTOR
			or UN521E	DIGI TRANSISTOR
			or PDTC144WU	DIGI TRANSISTOR
		Q7201	2SC1317/RS/-T	TRANSISTOR
		D201	1SS133	DIODE
			or 1SS270A	DIODE
		D2251	1SS133	DIODE
			or 1SS270A	DIODE
		D3001	LNB2301L01VI	LE DIODE
		D3002	1SS133	DIODE
			or 1SS270A	DIODE
		D3003	RD39ES/B3/-T2	ZENER DIODE
			or MTZJ39C	ZENER DIODE
		D3004	11ES2	DIODE
			or 1A3G	DIODE
	⚠	D3005	11ES2	DIODE
	⚠		or 1A3G	DIODE
		D3008	1SS133	DIODE
			or 1SS270A	DIODE
		D5001	S1WB/A/60-4102	BRIDGE DIODE
			or S1WB(A)60F4072X	BRIDGE DIODE
			or S1WB/A/60-X	BRIDGE DIODE
		D5101	AU01	DIODE
			or ERA18-04-T2	FR DIODE
			or 10ELS4	FR DIODE
			or 1SR153-400-T2	FR DIODE
		D5102	AU01	DIODE
			or 1SR153-400-T2	FR DIODE
			or 10ELS4	FR DIODE
			or ERA18-04-T2	FR DIODE
		D5103	1SS133	DIODE
			or 1SS270A	DIODE
		D5105	1SS133	DIODE
			or 1SS270A	DIODE
		D5203	AU01Z	FR DIODE
			or 10ELS2	FR DIODE
		D5204	AU01Z	FR DIODE
			or 10ELS2	FR DIODE
		D5207	AK04	SB DIODE
			or SBO40	SB DIODE
			or 11EQS04	SB DIODE
			or 1S4	SB DIODE
		D5209	AK04	SB DIODE
			or SBO40	SB DIODE
			or 11EQS04	SB DIODE
			or 1S4	SB DIODE
		D5210	AU01Z	FR DIODE
			or ERA18-02-T2	FR DIODE
			or PG104RS	FR DIODE
			or 10ELS2	FR DIODE

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
			or 1SR153-400-T2	FR DIODE	
		D5301	MTZJ15C	ZENER DIODE	
			or RD15ES/B3/-T2	ZENER DIODE	
		D5302	MTZJ11C	ZENER DIODE	
			or RD11ES/B3/-T2	ZENER DIODE	
		D5303	MTZJ5.6A	ZENER DIODE	
			or RD5.6ES/B1/-T2	ZENER DIODE	
		D5305	MTZJ5.6C	ZENER DIODE	
			or RD5.6ES/B3/-T2	ZENER DIODE	
		D6002	HZ30-2L-T2	ZENER DIODE	
			or HZ30-2LTD	Z DIODE (M)	
		D6701	1SS133	DIODE	
			or 1SS270A	DIODE	
		R1	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2	QRE141J-152Y	RESISTOR	1.5kΩ,1/4W
		R3	NRSA02J-822X	MG RESISTOR	8.2kΩ,1/10W
		R5	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R21	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R22	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R33	NRSA02J-222X	MG RESISTOR,C,F	2.2kΩ,1/10W
		R37	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		R46	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R47	NRSA02J-821X	MG RESISTOR,C,F	820Ω,1/10W
		R48	NRSA02J-102X	MG RESISTOR,C,F	1kΩ,1/10W
		R50	QRE141J-471Y	RESISTOR	470Ω,1/4W
		R51	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R65	NRSA02J-102X	MG RESISTOR,C,F	1kΩ,1/10W
		R72	NRSA02J-333X	MG RESISTOR,C,F	33kΩ,1/10W
		R73	NRSA02J-682X	MG RESISTOR,C,F	6.8kΩ,1/10W
		R76	NRSA02J-102X	MG RESISTOR,C,F	1kΩ,1/10W
		R77	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R81	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R82	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R88	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R90	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
		R92	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R93	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R94	NRSA02J-332X	MG RESISTOR,C,F	3.3kΩ,1/10W
		R104	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R118	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R201	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R202	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R203	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R204	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W
		R205	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R206	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W
		R208	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R209	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R210	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R251	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R252	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R254	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R255	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R256	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R258	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R259	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R301	NRSA02J-273X	MG RESISTOR,C,F	27kΩ,1/10W
		R302	NRSA02J-124X	MG RESISTOR,C,F	120kΩ,1/10W
		R303	NRSA02J-273X	MG RESISTOR,C,F	27kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R304	NRSA02J-682X	MG RESISTOR,C,F	6.8kΩ,1/10W
		R305	NRSA02J-473X	MG RESISTOR,C,F	47kΩ,1/10W
		R306	NRSA02J-273X	MG RESISTOR,C,F	27kΩ,1/10W
		R307	NRSA02J-222X	MG RESISTOR,C,F	2.2kΩ,1/10W
		R308	NRSA02J-222X	MG RESISTOR,C,F	2.2kΩ,1/10W
		R309	NRSA02J-821X	MG RESISTOR,C,F	820Ω,1/10W
		R310	NRSA02J-223X	MG RESISTOR,C,F	22kΩ,1/10W
		R311	NRSA02J-392X	MG RESISTOR,C,F	3.9kΩ,1/10W
		R312	NRSA02J-272X	MG RESISTOR,C,F	2.7kΩ,1/10W
		R313	NRSA02J-223X	MG RESISTOR,C,F	22kΩ,1/10W
		R314	NRVA02D-243X	CMF RESISTOR,C,F	24kΩ,1/10W
		R315	NRSA02J-564X	MG RESISTOR,C,F	560kΩ,1/10W
		R316	NRSA02J-224X	MG RESISTOR,C,F	220kΩ,1/10W
		R329	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		R2003	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2005	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R2007	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2008	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R2010	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R2013	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2014	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R2015	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
		R2016	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2017	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2018	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2019	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2053	NRSA02J-392X	MG RESISTOR	3.9kΩ,1/10W
		R2054	NRSA02J-153X	MG RESISTOR,D,F	15kΩ,1/10W
			NRSA02J-123X	MG RESISTOR,A,B,C,E	12kΩ,1/10W
		R2055	NRSA02J-3R3X	MG RESISTOR	3.3Ω,1/10W
		R2056	NRSA02J-820X	MG RESISTOR,A,B,C,E	82Ω,1/10W
			NRSA02J-101X	MG RESISTOR,D,F	100Ω,1/10W
		R2057	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2058	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2059	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2060	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R2061	NRSA02J-273X	MG RESISTOR,D,F	27kΩ,1/10W
		R2062	NRSA02J-3R3X	MG RESISTOR,D,F	3.3Ω,1/10W
		R2063	QRE141J-151Y	RESISTOR,D,F	150Ω,1/4W
		R2064	NRSA02J-473X	MG RESISTOR,D,F	47kΩ,1/10W
		R2065	NRSA02J-183X	MG RESISTOR,D,F	18kΩ,1/10W
		R2201	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2202	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2203	NRSA02J-473X	MG RESISTOR,D,F	47kΩ,1/10W
		R2204	NRSA02J-682X	MG RESISTOR,D,F	6.8kΩ,1/10W
		R2205	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2206	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2207	NRSA02J-473X	MG RESISTOR,D,F	47kΩ,1/10W
		R2208	NRSA02J-682X	MG RESISTOR,D,F	6.8kΩ,1/10W
		R2209	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
		R2210	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2211	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R2212	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R2213	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2214	NRSA02J-681X	MG RESISTOR	680Ω,1/10W
		R2215	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
		R2216	NRSA02J-122X	MG RESISTOR,A,B,D,E	1.2kΩ,1/10W
		R2217	NRSA02J-472X	MG RESISTOR,A,B,D,E	4.7kΩ,1/10W
		R2218	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R2219	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R2220	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R2222	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2223	NRSA02J-511X	MG RESISTOR	510Ω,1/10W
		R2224	NRSA02J-511X	MG RESISTOR	510Ω,1/10W
		R2225	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2226	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R2227	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2228	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R2229	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R2230	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2231	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2232	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R2233	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R2234	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2235	NRSA02J-681X	MG RESISTOR,A,C,D,F	680Ω,1/10W
		R2236	NRSA02J-272X	MG RESISTOR,A,C,D,F	2.7kΩ,1/10W
		R2237	NRSA02J-681X	MG RESISTOR,A,C,D,F	680Ω,1/10W
		R2238	NRSA02J-272X	MG RESISTOR,A,C,D,F	2.7kΩ,1/10W
		R2251	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R2252	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R2253	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R2255	NRSA02J-273X	MG RESISTOR	27kΩ,1/10W
		R3024	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3025	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3026	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3027	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R3028	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3030	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3031	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3032	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3033	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3034	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3035	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3037	QUY160-100Y	IM BUS WIRE	
		R3038	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
		R3039	QUY160-100Y	IM BUS WIRE	
		R3040	NRSA02J-0R0X	MG RESISTOR,D,E,F	0Ω,1/10W
		R3041	NRSA02J-0R0X	MG RESISTOR,D,E,F	0Ω,1/10W
		R3042	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3043	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		R3045	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3046	QUY160-100Y	IM BUS WIRE	
		R3047	QUY160-100Y	IM BUS WIRE	
		R3048	QUY160-100Y	IM BUS WIRE	
		R3049	QUY160-100Y	IM BUS WIRE	
		R3050	QUY160-100Y	IM BUS WIRE	
		R3051	QUY160-100Y	IM BUS WIRE	
		R3052	QUY160-100Y	IM BUS WIRE	
		R3053	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3054	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R3055	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3058	QUY160-100Y	IM BUS WIRE	
		R3059	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R3060	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R3061	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R3062	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R3063	QRE141J-271Y	RESISTOR	270Ω,1/4W
		R3064	QRE141J-271Y	RESISTOR	270Ω,1/4W
		R3065	QRE141J-271Y	RESISTOR	270Ω,1/4W
		R3066	QRE141J-271Y	RESISTOR	270Ω,1/4W
		R3067	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
		R3068	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R3069	QUY160-100Y	IM BUS WIRE	
		R3070	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3071	QUY160-100Y	IM BUS WIRE	
		R3072	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3073	QUY153-050Y	IM BUS WIRE	
		R3074	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3077	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3080	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R3082	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R3083	QRE141J-102Y	RESISTOR,A,C,D,F	1kΩ,1/4W
		R3084	QUY153-050Y	IM BUS WIRE	
		R3085	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3086	QUY160-100Y	IM BUS WIRE	
		R3087	NRSA02J-102X	MG RESISTOR,A,C,D,F	1kΩ,1/10W
		R3088	NRSA02J-0R0X	MG RESISTOR,A,C,D,F	0Ω,1/10W
		R3089	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		R3090	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3091	QUY153-050Y	IM BUS WIRE	
		R3092	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3093	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3094	QUY160-100Y	IM BUS WIRE	
		R3095	QUY160-100Y	IM BUS WIRE	
		R3096	NRSA02J-0R0X	MG RESISTOR,D,F	0Ω,1/10W
		R3097	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		R3098	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3099	NRSA02J-0R0X	MG RESISTOR,D,F	0Ω,1/10W
		R3100	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3101	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3102	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R3205	QRE141J-181Y	RESISTOR	180Ω,1/4W
		R3207	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R3208	NRSA02J-121X	MG RESISTOR	120Ω,1/10W
		R3209	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R3210	NRSA02J-121X	MG RESISTOR	120Ω,1/10W
		R3211	NRSA02J-183X	MG RESISTOR	18kΩ,1/10W
		R3212	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W
		R3213	NRSA02J-334X	MG RESISTOR	330kΩ,1/10W
		R3214	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3215	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3216	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3217	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3218	QRE141J-472Y	RESISTOR	4.7kΩ,1/4W
		R3219	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3220	NRSA02J-104X	MG RESISTOR	100kΩ,1/10W
		R3222	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3223	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R3224	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R3225	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3229	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
		R3232	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3234	QRE141J-103Y	RESISTOR	10kΩ,1/4W
		R3235	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R3236	NRSA02J-332X	MG RESISTOR	3.3kΩ,1/10W
		R3244	NRSA02J-333X	MG RESISTOR,D,E,F	33kΩ,1/10W
		R3245	NRSA02J-333X	MG RESISTOR,D,E,F	33kΩ,1/10W
		R3246	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R3248	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R3251	NRSA02J-103X	MG RESISTOR,D,F	10kΩ,1/10W
		R3252	NRSA02J-153X	MG RESISTOR	15kΩ,1/10W
		R3253	QRE141J-103Y	RESISTOR	10kΩ,1/4W
		R4003	NRSA02J-561X	MG RESISTOR	560Ω,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R4004	NRSA02J-561X	MG RESISTOR	560Ω,1/10W
		R4005	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R4007	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4009	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R4011	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R4012	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R4015	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R4017	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R5101	QRE141J-224Y	RESISTOR	220kΩ,1/4W
		R5102	QRE141J-224Y	RESISTOR	220kΩ,1/4W
		R5103	QRE141J-683Y	RESISTOR	68kΩ,1/4W
		R5104	QRG02GJ-683	OMF RESISTOR	68kΩ,2W
		R5106	QRT01DJ-R39X	MF RESISTOR	0.39Ω,1W
		R5107	QRE121J-331Y	RESISTOR	330Ω,1/2W
		R5108	NRSA02J-152X	MG RESISTOR	1.5kΩ,1/10W
		R5109	QRE141J-561Y	RESISTOR	560Ω,1/4W
		R5110	NRSA02J-224X	MG RESISTOR	220kΩ,1/10W
		R5111	NRSA02J-391X	MG RESISTOR	390Ω,1/10W
		R5112	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R5302	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R5303	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R5304	NRSA02J-471X	MG RESISTOR	470Ω,1/10W
		R5306	NRSA02J-181X	MG RESISTOR	180Ω,1/10W
		R5310	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R5312	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R5313	NRSA02J-821X	MG RESISTOR	820Ω,1/10W
		R5319	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R5332	QRL02DJ-391X	OMF RESISTOR	390Ω,2W
		R6020	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6021	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6031	NRSA02J-271X	MG RESISTOR	270Ω,1/10W
		R6032	NRSA02J-183X	MG RESISTOR,C,F	18kΩ,1/10W
			NRSA02J-472X	MG RESISTOR,A,B,D,E	4.7kΩ,1/10W
		R6033	NRSA02J-182X	MG RESISTOR,A,B,D,E	1.8kΩ,1/10W
			NRSA02J-183X	MG RESISTOR,C,F	18kΩ,1/10W
		R6050	NRSA02J-101X	MG RESISTOR,A,B,D,E	100Ω,1/10W
		R6051	QRE141J-101Y	RESISTOR,A,B,D,E	100Ω,1/4W
		R6052	NRSA02J-101X	MG RESISTOR,A,B,D,E	100Ω,1/10W
		R6056	NRSA02J-101X	MG RESISTOR,A,B,D,E	100Ω,1/10W
		R6080	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6707	NRSA02J-330X	MG RESISTOR	33Ω,1/10W
		R6708	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R6709	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6710	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R6711	NRSA02J-474X	MG RESISTOR	470kΩ,1/10W
		R6712	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6713	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R6714	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R6715	NRSA02J-123X	MG RESISTOR	12kΩ,1/10W
		R6716	NRSA02J-470X	MG RESISTOR	47Ω,1/10W
		R6719	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R6720	QRE141J-562Y	RESISTOR	5.6kΩ,1/4W
		R6721	NRSA02J-562X	MG RESISTOR	5.6kΩ,1/10W
		R7001	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7002	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7003	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7004	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7005	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7006	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7007	NRSA02J-331X	MG RESISTOR	330Ω,1/10W

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		R7015	QRE141J-102Y	RESISTOR	1kΩ,1/4W
		R7020	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7021	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R7022	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R7023	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R7024	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R7025	NRSA02J-472X	MG RESISTOR,A,B,C	4.7kΩ,1/10W
		R7030	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
		R7031	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
		R7032	NRSA02J-182X	MG RESISTOR	1.8kΩ,1/10W
		R7033	NRSA02J-222X	MG RESISTOR	2.2kΩ,1/10W
		R7034	NRSA02J-272X	MG RESISTOR	2.7kΩ,1/10W
		R7101	NRSA02J-473X	MG RESISTOR	47kΩ,1/10W
		R7102	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
		R7103	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R7105	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7107	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7108	NRSA02J-750X	MG RESISTOR,A,C,D,F	75Ω,1/10W
		R7110	NRSA02J-221X	MG RESISTOR,A,C,D,F	220Ω,1/10W
		R7111	NRSA02J-221X	MG RESISTOR,A,C,D,F	220Ω,1/10W
		R7112	QRE141J-331Y	RESISTOR	330Ω,1/4W
		R7113	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
		R7114	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R7116	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R7117	QRE141J-750Y	RESISTOR	75Ω,1/4W
		R7119	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R7120	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
		R7122	NQL402M-4R7X	COIL	4.7µH
		R7124	NQL402M-4R7X	COIL	4.7µH
		R7131	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
		R7132	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		R7133	QRE121J-471Y	RESISTOR,A,C,D,F	470Ω,1/2W
			QRE121J-331Y	RESISTOR,B,E	330Ω,1/2W
		R7134	NRSA02J-471X	MG RESISTOR,A,C,D,F	470Ω,1/10W
			NRSA02J-0R0X	MG RESISTOR,B,E	0Ω,1/10W
		R7142	NRSA02J-0R0X	MG RESISTOR,A,C,D,F	0Ω,1/10W
		R7143	NRSA02J-0R0X	MG RESISTOR,A,C,D,F	0Ω,1/10W
		R7144	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		R7145	NRSA02J-682X	MG RESISTOR	6.8kΩ,1/10W
		R7146	NRSA02J-393X	MG RESISTOR	39kΩ,1/10W
		R7147	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
		R7148	NRSA02J-331X	MG RESISTOR	330Ω,1/10W
		R7160	NRSA02J-331X	MG RESISTOR,D,F	330Ω,1/10W
		R7161	NRSA02J-101X	MG RESISTOR,D,F	100Ω,1/10W
		R7162	NRSA02J-331X	MG RESISTOR,D,F	330Ω,1/10W
		R7163	NRSA02J-750X	MG RESISTOR,D,F	75Ω,1/10W
		R7201	QRE123J-100X	RESISTOR	10Ω,1/2W
		R7202	QRE141J-221Y	RESISTOR	220Ω,1/4W
		R7203	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
		VR2251	QUY153-050Y	IM BUS WIRE	
		B5	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		B28	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		B35	QUY153-050Y	IM BUS WIRE,C,F	
		B38	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		B40	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		B50	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		B201	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		B301	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		B2051	QUY153-050Y	IM BUS WIRE,A,B,C	
		B3003	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		B5001	QUY160-100Y	IM BUS WIRE	

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		B5002	QUY160-100Y	IM BUS WIRE	
		B6701	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		B7113	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		B7114	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		B7116	NRSA02J-0R0X	MG RESISTOR,B,E	0Ω,1/10W
		C1	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C2	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C3	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C4	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C5	QEKC0JM-476	E CAPACITOR	47μF,6.3V
		C6	QDYB1CM-103Y	CAPACITOR	0.01μF,16V
		C7	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C8	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C9	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C10	NDC21HJ-151X	CAPACITOR	150pF,50V
		C11	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C12	NDC21HJ-390X	CAPACITOR,C,F	39pF,50V
			NDC21HJ-470X	CAPACITOR,A,B,C,E	47pF,50V
		C14	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C15	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C16	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C17	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
		C18	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C19	QEKJ1HM-225	E CAPACITOR	2.2μF,50V
		C20	NCB21AK-105X	CAPACITOR	1μF,10V
		C21	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C22	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C23	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C24	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C25	NDC21HJ-6R0X	CAPACITOR	6pF,50V
		C27	NCB21EK-223X	CAPACITOR	0.022μF,25V
		C28	QEKJ1HM-335	E CAPACITOR	3.3μF,50V
		C29	NCB21EK-333X	CAPACITOR	0.033μF,25V
		C30	QEKJ1HM-474	E CAPACITOR	0.47μF,50V
		C31	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C32	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C33	QERF1CM-106	E CAPACITOR	10μF,16V
		C34	NCB21CK-224X	CAPACITOR	0.22μF,16V
		C35	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C36	QERF1EM-475	E CAPACITOR	4.7μF,25V
		C37	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C38	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C39	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C40	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C41	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C51	QEKC1HM-105	E CAPACITOR,D,F	1μF,50V
		C52	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C53	NRSA02J-0R0X	MG RESISTOR,C,F	0Ω,1/10W
		C61	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C64	NDC21HJ-220X	CAPACITOR	22pF,50V
		C65	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C69	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C70	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C79	NDC21HJ-390X	CAPACITOR,C,F	39pF,50V
		C81	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C84	NDC21HJ-7R0X	CAPACITOR,C,F	7pF,50V
		C92	NDC21HJ-330X	CAPACITOR,B,E	33pF,50V
		C94	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C95	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C106	NCB21HK-821X	CAPACITOR	820pF,50V
		C108	NDC21HJ-680X	CAPACITOR	68pF,50V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C109	NCB21CK-224X	CAPACITOR	0.22μF,16V
		C110	NDC21HJ-820X	CAPACITOR	82pF,50V
		C114	NDC21HJ-181X	CAPACITOR,A,C,D,F	180pF,50V
		C126	NDC21HJ-680X	CAPACITOR	68pF,50V
		C127	NDC21HJ-680X	CAPACITOR,B,E	68pF,50V
		C128	NDC21HJ-680X	CAPACITOR,B,E	68pF,50V
		C129	NCB21HK-103X	CAPACITOR,A,B,D,E	0.01μF,50V
		C130	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C201	NDC21HJ-220X	CAPACITOR	22pF,50V
		C202	QERF1EM-475	E CAPACITOR	4.7μF,25V
		C203	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C204	NCB21HK-681X	CAPACITOR	680pF,50V
		C205	QEKJ1HM-475	E CAPACITOR	4.7μF,50V
		C207	QEKJ1HM-475	E CAPACITOR	4.7μF,50V
		C209	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C210	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C212	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C213	NCB21HK-103X	CAPACITOR,A,B,D,E	0.01μF,50V
			NDC21HJ-100X	CAPACITOR,C,F	10pF,50V
		C251	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C252	QEKJ1EM-475	E CAPACITOR	4.7μF,25V
		C253	NCB21EK-563X	CAPACITOR	0.056μF,25V
		C254	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C255	QEKJ0JM-227	E CAPACITOR	220μF,6.3V
		C256	NCB21CK-224X	CAPACITOR	0.22μF,16V
		C257	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C258	NCB21CK-224X	CAPACITOR,A,B,D,E	0.22μF,16V
		C259	QEKJ0JM-227	E CAPACITOR	220μF,6.3V
		C301	NDC21HJ-151X	CAPACITOR,C,F	150pF,50V
		C302	QEKJ1HM-225	E CAPACITOR,C,F	2.2μF,50V
		C303	NCB21HK-682X	CAPACITOR,C,F	0.0068μF,50V
		C304	NCB21HK-682X	CAPACITOR,C,F	0.0068μF,50V
		C305	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C307	NDC21HJ-151X	CAPACITOR,C,F	150pF,50V
		C308	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C309	NCB21EK-104X	CAPACITOR,C,F	0.1μF,25V
		C310	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C311	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C312	NCB21HK-102X	CAPACITOR,C,F	0.001μF,50V
		C313	QERF1HM-474	E CAPACITOR,C,F	0.47μF,50V
		C314	NDC21HJ-471X	CAPACITOR,C,F	470pF,50V
		C315	QERF1CM-106	E CAPACITOR,C,F	10μF,16V
		C316	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C317	NCB21HK-681X	CAPACITOR,C,F	680pF,50V
		C318	NCB21EK-223X	CAPACITOR,C,F	0.022μF,25V
		C319	QERF1HM-105	E CAPACITOR,C,F	1μF,50V
		C320	NCB21HK-103X	CAPACITOR,C,F	0.01μF,50V
		C321	NDC21HG-301X	CAPACITOR,C,F	300pF,50V
		C322	NCB21CK-474X	CAPACITOR,C,F	0.47μF,16V
		C323	QEKJ0JM-476	E CAPACITOR,C,F	47μF,6.3V
		C2001	QEKJ1HM-475	E CAPACITOR	4.7μF,50V
		C2002	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C2003	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C2005	QEKJ1HM-475	E CAPACITOR	4.7μF,50V
		C2006	NCB21HK-123X	CAPACITOR	0.012μF,50V
		C2007	QEKJ1CM-226	E CAPACITOR	22μF,16V
		C2008	QEKJ1HM-475	E CAPACITOR	4.7μF,50V
		C2009	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C2010	NCB21HK-152X	CAPACITOR	0.0015μF,50V
		C2011	QEKJ1HM-475	E CAPACITOR	4.7μF,50V
		C2012	QEKC1HM-475	E CAPACITOR	4.7μF,50V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C2013	NDC21HJ-6R0X	CAPACITOR	6pF,50V
		C2016	NDC21HJ-181X	CAPACITOR	180pF,50V
		C2051	NCB21HK-331X	CAPACITOR	330pF,50V
		C2052	QFLC1HJ-333Z	F CAPACITOR	0.033μF,50V
		C2053	NCB21HK-472X	CAPACITOR,A,B,C,E	0.0047μF,50V
			NCB21HK-332X	CAPACITOR,D,F	0.0033μF,50V
		C2054	NCB21EK-223X	CAPACITOR,A,C	0.022μF,25V
			NCB21HK-223X	CAPACITOR,B,E	0.022μF,50V
			NCB21HK-103X	CAPACITOR,D,F	0.01μF,50V
		C2055	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C2061	QFLC1HJ-333Z	F CAPACITOR	0.033μF,50V
			QFLC1HJ-823Z	F CAPACITOR	0.082μF,50V
		C2062	NCB21HK-332X	CAPACITOR,D,F	0.0033μF,50V
		C2063	NCB21HK-103X	CAPACITOR,D,F	0.01μF,50V
		C2064	QEKJ1EM-106	E CAPACITOR,D,F	10μF,25V
		C2201	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C2202	QEKJ1HM-475	E CAPACITOR	4.7μF,50V
		C2203	QEKJ1HM-475	E CAPACITOR	4.7μF,50V
		C2204	QEKJ0JM-336	E CAPACITOR	33μF,6.3V
		C2205	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C2206	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C2207	NCB21HK-153X	CAPACITOR	0.015μF,50V
		C2208	NCB21HK-153X	CAPACITOR	0.015μF,50V
		C2209	QERF1CM-106	E CAPACITOR	10μF,16V
		C2210	QERF1CM-106	E CAPACITOR	10μF,16V
		C2211	QEKJ0JM-336	E CAPACITOR	33μF,6.3V
		C2212	QERF0JM-476	E CAPACITOR	47μF,6.3V
		C2213	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C2214	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C2215	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C2216	QEKJ1CM-476	E CAPACITOR	47μF,16V
		C2217	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C2218	QEKJ1EM-106	E CAPACITOR,A,B,C,E	10μF,25V
		C2219	QEKJ1CM-226	E CAPACITOR,A,B,C,E	22μF,16V
		C2220	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C2221	NCB21EK-223X	CAPACITOR	0.022μF,25V
		C2222	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C2223	NCB21EK-473X	CAPACITOR	0.047μF,25V
		C2224	NCB21EK-473X	CAPACITOR	0.047μF,25V
		C2225	NCB21AK-105X	CAPACITOR,A,C,D,F	1μF,10V
		C2226	NCB21AK-105X	CAPACITOR,A,C,D,F	1μF,10V
		C2227	QERF1CM-106	E CAPACITOR	10μF,16V
		C2230	QEKJ1EM-106	E CAPACITOR,A,C,D,F	10μF,25V
		C2231	QEKJ1EM-106	E CAPACITOR,A,C,D,F	10μF,25V
		C2251	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C2252	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C2253	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C2254	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C2255	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C2256	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C2257	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C2258	NDC21HJ-181X	CAPACITOR,A,C,D,F	180pF,50V
		C2259	QEKJ1HM-334	E CAPACITOR	0.33μF,50V
		C3004	NCB21EK-473X	CAPACITOR	0.047μF,25V
		C3011	QETL0JM-338	E CAPACITOR	3300μF,6.3V
		C3012	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C3013	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C3014	QERF0JM-476	E CAPACITOR	47μF,6.3V
		C3016	NCB21EK-473X	CAPACITOR	0.047μF,25V
		C3022	NCB21EK-473X	CAPACITOR	0.047μF,25V
		C3024	NDC21HJ-120X	CAPACITOR	12pF,50V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C3025	QAT3725-300Z	TRIM CAPACITOR TIMER CLOCK,A,D	
		C3030	QEKJ0JM-476	E CAPACITOR	47μF,6.3V
		C3031	NCB21EK-473X	CAPACITOR	0.047μF,25V
		C3033	NCB21EK-473X	CAPACITOR	0.047μF,25V
		C3036	NDC21HJ-180X	CAPACITOR	18pF,50V
		C3037	NDC21HJ-120X	CAPACITOR	12pF,50V
		C3041	NDC21HJ-180X	CAPACITOR,B,C,E,F	18pF,50V
		C3045	NDC21HJ-101X	CAPACITOR	100pF,50V
		C3050	NCF21EZ-104X	CAPACITOR	0.1μF,25V
		C3051	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C3052	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C3054	NCB21HK-222X	CAPACITOR	0.0022μF,50V
		C3056	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C3071	QEKJ1CM-336	E CAPACITOR	33μF,16V
		C3073	QDYB1CM-103Y	CAPACITOR	0.01μF,16V
		C3074	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C3075	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C3076	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C4002	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C4004	QERF1CM-226	E CAPACITOR	22μF,16V
		C4005	NCB21HK-222X	CAPACITOR	0.0022μF,50V
		C4006	QERF0JM-476	E CAPACITOR	47μF,6.3V
		C4007	NCB21HK-102X	CAPACITOR,D,F	0.001μF,50V
		C4008	QEQF1HM-105	NP E CAPACITOR	1μF,50V
		C4009	NCB21HK-563X	CAPACITOR	0.056μF,50V
		C4010	NCB21EK-223X	CAPACITOR	0.022μF,25V
		C4011	NCB21EK-104X	CAPACITOR	0.1μF,25V
		C4012	QERF1HM-105	E CAPACITOR	1μF,50V
		C4014	NDC21HJ-101X	CAPACITOR	100pF,50V
		C4015	NCB21HK-102X	CAPACITOR	0.001μF,50V
		C4016	NDC21HJ-101X	CAPACITOR	100pF,50V
		C4031	QEKJ1CM-336	E CAPACITOR	33μF,16V
	⚠	C5001	QFZ9072-473	F CAPACITOR	0.047μF,125V
	⚠	C5004	QCZ9071-222	CAPACITOR	0.0022μF,250V
		C5006	QEZ0375-686	E CAPACITOR	68μF,400V
		C5101	QCZ0212-472	CAPACITOR	0.0047μF,1kV
		C5102	QCZ0302-330Z	CAPACITOR	33pF,1kV
		C5104	QEKJ1HM-105	E CAPACITOR	1μF,50V
		C5105	QFN31HJ-153	F CAPACITOR	0.015μF,50V
		C5106	QCBB1HJ-271	CAPACITOR	270pF,50V
		C5107	QFV91HJ-104	F CAPACITOR	0.1μF,50V
		C5202	QETN1CM-108	E CAPACITOR	1000μF,16V
		C5203	QEMT1AM-128	E CAPACITOR	1200μF,10V
		C5204	QETJ2AM-475	E CAPACITOR	4.7μF,100V
		C5206	QEKJ1CM-476	E CAPACITOR	47μF,16V
		C5207	QEKJ1CM-107	E CAPACITOR	100μF,16V
		C5301	QEKJ1CM-107	E CAPACITOR	100μF,16V
		C5303	QEKJ1CM-107	E CAPACITOR	100μF,16V
		C5305	QFVF1HJ-274Z	F CAPACITOR	0.27μF,50V
		C5307	QEKJ1CM-476	E CAPACITOR	47μF,16V
		C5308	QEKJ1CM-107	E CAPACITOR	100μF,16V
		C6008	NCB21HK-123X	CAPACITOR,C,F	0.012μF,50V
		C6013	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C6016	NDC21HJ-101X	CAPACITOR,A,B,D,E	100pF,50V
		C6027	NDC21HJ-151X	CAPACITOR,A,B,D,E	150pF,50V
		C6032	NCB21EK-473X	CAPACITOR,A,B,D,E	0.047μF,25V
		C6037	QEKJ1HM-106	E CAPACITOR	10μF,50V
		C6056	NDC21HJ-470X	CAPACITOR,A,B,D,E	47pF,50V
		C6501	QEKJ1EM-106	E CAPACITOR	10μF,25V
		C6502	NCB21HK-103X	CAPACITOR	0.01μF,50V
		C6704	NCB21HK-103X	CAPACITOR	0.01μF,50V

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		C6707	NDC21HJ-470X	CAPACITOR	47pF,50V
		C6708	NDC21HJ-8R0X	CAPACITOR	8pF,50V
		C6709	NDC21HJ-2R0X	CAPACITOR	2pF,50V
		C6713	NCF21CZ-224X	CAPACITOR	0.22µF,16V
		C6714	NCB21HK-222X	CAPACITOR	0.0022µF,50V
		C6715	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
		C6716	NCB21HK-222X	CAPACITOR	0.0022µF,50V
		C6717	QEKJ1HM-225	E CAPACITOR	2.2µF,50V
		C6719	QEKJ1EM-106	E CAPACITOR	10µF,25V
		C6720	QEKJ1EM-106	E CAPACITOR	10µF,25V
		C6721	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C6723	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C6724	QEKJ1HM-225	E CAPACITOR,C,F	2.2µF,50V
		C7011	QEKJ0JM-476	E CAPACITOR	47µF,6.3V
		C7103	NCB21HK-681X	CAPACITOR,A,C,D,F	680pF,50V
		C7104	NCB21HK-681X	CAPACITOR,A,C,D,F	680pF,50V
		C7117	QETN0JM-477	E CAPACITOR	470µF,6.3V
		C7119	NCB21HK-681X	CAPACITOR	680pF,50V
		C7120	NCB21HK-681X	CAPACITOR	680pF,50V
		C7128	QEKJ1CM-107	E CAPACITOR	100µF,16V
		C7129	NCB21HK-103X	CAPACITOR	0.01µF,50V
		C7131	QETJ0JM-477	E CAPACITOR,A,C,D,F	470µF,6.3V
		C7141	NCB21HK-103X	CAPACITOR,A,C,D,F	0.01µF,50V
		C7143	NDC21HJ-330X	CAPACITOR,A,C,D,F	33pF,50V
		C7144	NDC21HJ-680X	CAPACITOR,A,C,D,F	68pF,50V
		C7155	NDC21HJ-680X	CAPACITOR,A,C,D,F	68pF,50V
		C7156	QEKJ1HM-474	E CAPACITOR,A,C,D,F	0.47µF,50V
		C7157	QEPF1HM-474	NP E CAPACITOR,A,C,D,F	0.47µF,50V
		C7158	QEKJ1HM-474	E CAPACITOR,A,C,D,F	0.47µF,50V
		C7159	QEKJ1HM-474	E CAPACITOR,A,C,D,F	0.47µF,50V
		C7160	NDC21HJ-330X	CAPACITOR,A,C,D,F	33pF,50V
		C7164	NCB21HK-681X	CAPACITOR,D,F	680pF,50V
		C7166	NCB21HK-681X	CAPACITOR,D,F	680pF,50V
		C7168	NCB21HK-681X	CAPACITOR	680pF,50V
		C7169	NCB21HK-681X	CAPACITOR	680pF,50V
		C7170	NCB21HK-821X	CAPACITOR	820pF,50V
		C7171	NCB21HK-821X	CAPACITOR	820pF,50V
		C7182	NCB21HK-681X	CAPACITOR	680pF,50V
		C7183	NCB21HK-681X	CAPACITOR	680pF,50V
		C7197	NCB21EK-104X	CAPACITOR	0.1µF,25V
		C7201	QETN0JM-477	E CAPACITOR	470µF,6.3V
		L1	QQL29BJ-100Z	COIL	10µH
		L2	QUY153-050Y	IM BUS WIRE	
		L3	QQL29BJ-100Z	COIL	10µH
		L4	QQL29BJ-100Z	COIL	10µH
		L5	QQL29BJ-100Z	COIL	10µH
		L12	QQR0967-001	COIL	12µH
		L13	QQL071J-330Y	COIL	33µH
		L14	QQL29BJ-101Z	COIL,C,F	100µH
		L20	QQL071J-221Y	COIL,C,F	220µH
		L22	QQL231J-1R0Y	COIL,B,E	1.0µH
		L24	QQL071J-270Y	COIL	27µH
		L27	QQL071J-330Y	COIL	33µH
		L28	QQL071J-680Y	COIL	68µH
		L201	QQL071J-150Y	COIL	15µH
		L202	QUY153-050Y	IM BUS WIRE	
		L203	QQL071J-330Y	COIL,C,F	33µH
			QUY153-050Y	IM BUS WIRE,A,B,D,E	
		L204	QQL071J-151Y	COIL	150µH
		L251	QUY153-050Y	IM BUS WIRE	
		L252	QUY153-050Y	IM BUS WIRE	

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		L301	QQL29BJ-100Z	COIL,C,F	10µH
		L302	QQL29BJ-6R8Z	COIL,C,F	6.8µH
		L303	QQL231J-270Y	COIL,C,F	27µH
		L2001	QUY153-050Y	IM BUS WIRE	
		L2201	QUY153-050Y	IM BUS WIRE	
		L2251	QQL29BJ-100Z	COIL	10µH
		L2252	QQL29BJ-151Z	COIL,A,C,D,F	150µH
		L3001	QQL231J-100Y	COIL	10µH
		L4001	QUY153-050Y	IM BUS WIRE	
		L5201	PELN1184	COIL	33µH
		L5202	PELN1184	COIL	33µH
		L6001	QQL29BJ-100Z	COIL,C,F	10µH
			QQL29BK-1R0Z	COIL,A,B,D,E	1.0µH
		L6002	QQL29BJ-100Z	COIL	10µH
		L6501	QQL29BJ-3R3Z	COIL	33µH
		L6502	QUY153-050Y	IM BUS WIRE	
		L7101	QQL231J-R22Y	COIL	0.22µH
		L7102	QQL231J-R22Y	COIL	0.22µH
		L7107	QUY153-050Y	IM BUS WIRE	
		L7109	QQL231J-1R0Y	COIL,A,C,D,F	1.0µH
		L7113	QQL231J-1R0Y	COIL,A,C,D,F	1.0µH
		L7201	QQL071J-100Y	COIL	10µH
		X1	QAX0576-001Z	CRYSTAL RESONATOR	
		X3001	QAX0444-001	CRYSTAL RESONATOR,B,C,E,F	
			QAX0445-001	CRYSTAL RESONATOR,A,D	
		X3002	QAX0527-001	CRYSTAL RESONATOR	
		X6701	QAX0443-001	CRYSTAL RESONATOR	
		S3001	QSW0602-004	PUSH SWITCH,REC SAFATY	
		S7001	QSW0456-002Z	TACT SWITCH	
		S7002	QSW0456-002Z	TACT SWITCH	
		S7004	QSW0456-002Z	TACT SWITCH	
		S7006	QSW0456-002Z	TACT SWITCH	
		S7008	QSW0456-002Z	TACT SWITCH	
		S7010	QSW0456-002Z	TACT SWITCH	
		S7012	QSW0456-002Z	TACT SWITCH	
		S7014	QSW0456-002Z	TACT SWITCH	
		S7015	QSW0456-002Z	TACT SWITCH	
		S7016	QSW0456-002Z	TACT SWITCH	
		K2001	NQL103K-R10X	COIL	0.1µH
		K2002	NQL103K-R10X	COIL	0.1µH
		K2003	NQR0403-003X	FERRATE BEADS	
		K2004	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
		K2251	NQR0007-002X	FERRATE BEADS	
		K2252	NQR0007-002X	FERRATE BEADS	
		K2253	NQR0007-002X	FERRATE BEADS	
		K5101	QQR0678-001Z	FERRATE BEADS	
		K5102	QUY153-050Y	IM BUS WIRE	
		K6701	NQR0200-003X	FERRATE BEADS	
		K6702	NQR0200-003X	FERRATE BEADS	
		K6703	NQR0200-003X	FERRATE BEADS	
		K6704	NQR0200-003X	FERRATE BEADS	
		K6705	NQR0200-003X	FERRATE BEADS	
		K6706	NQR0200-003X	FERRATE BEADS	
		K6707	NQR0200-003X	FERRATE BEADS,C,F	
		PC3001	RPI-304J	IC(PHOTO SENSOR)	
		PC3002	RPI-304J	IC(PHOTO SENSOR)	
	⚠	PC5101	PS2561L1-1/L/	IC(PHOTO COUPLER)	
		T2051	PELN0832	OSC TRANSFORMER,A,B,D,E	
			PELN0860	OSC TRANSFORMER,C,F	
		T2052	PELN0861	OSC TRANSFORMER,D,F	
	⚠	T5001	QQS0083-001	SW TRANSF	

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
		TU6001	QAU0261-002	TUNER,A,B,D,E	
			QAU0266-001	TUNER,C,F	
		SD1	LP21105-001A	SHIELD CASE	
		DI7001	LTG-Y2K16M-02J	LE DIODE	
		ET1	PQ21623-2-5	EARTH PLATE(RF)	
		HS1	LP40090-001A	HEAT SINK,Q5101	
		JS3001	QSW0954-002	ROTARY ENCODER	
		J7101	PEMC1104	RGB21PIN SOCKET,AV1	
		J7102	PEMC1104	RGB21PIN SOCKET,AV2	
		J7103	QNN0292-003	PIN JACK,REAR OUT	
		J7105	QNN0381-002	PIN JACK,FRONT IN,D,F	
	⚠	TB1	LP20317-009B	TERMINAL.BOARD(PAL),D,F	
	⚠		LP20317-010B	TERMINAL.BOARD(PAL),A,B,C,E	
		OT1	QYTDST3006Z	SCREW,Q5101	
		FC5001	QNG0006-001Z	FUSE CLIP,F5001	
		FC5002	QNG0006-001Z	FUSE CLIP,F5001	
	⚠	LF5002	QQR0978-001	LINE FILTER	
		CN1	QGF1201C2-09	FPC CONNECTOR,(1-9)DRUM	
		CN2001	QGF1207C1-06	FPC CONNECTOR,(1-6)A/C HEAD	
		CN2002	QGB2532J1-02	CONNECTOR,(1-2)FE HEAD	
		CN3001	QGB2032M4-12	CONNECTOR,(1-12)CAPSTAN MOTOR	
	⚠	CN5001	QGA7901C3-02	CONNECTOR,(1-2)AC IN	
		CN7001	QGF1207C1-04	CONNECTOR,(1-4)ADV.JOG,D,E,F	
	⚠	CP3001	QMFZ050-1R5X-E	FUSE	T1.5A,125V
	⚠	CP4001	QMFZ050-1R5X-E	FUSE	T1.5A,125V
	⚠	F5001	QMF51E2-2R0J1	FUSE	T2.0A,AC250V

****

A/C HEAD BOARD ASSEMBLY <12>

	PW1	LPA10158-01A1	A/C HEAD BOARD ASSY

****

ADV.JOG BOARD ASSEMBLY(HR-J790EU/J795EK/J795MS) <38>

	PW1	LPA20013-07A	ADV.JOG BOARD ASSY
	UN7001	QSW0905-001	ROTARY ENCODER
	CN7003	QGF1207F1-04	FPC CONNECTOR,(1-4)MAIN

****

LOADING MOTOR BOARD ASSEMBLY <55>

	PW2	LPA10158-01A2	LOADING MOTOR BOARD ASSY

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

****

R.PAUSE BOARD ASSEMBLY(HR-J790EU/J795MS) <91>

	PW3	LPA10160-01A3	R.PAUSE BOARD ASSY	
	R7166	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	J7107	PU60612	MINI JACK	
	CN7104	QUM022-18A4A4	PARA RIBON WIRE	

****

SAT CTL BOARD ASSEMBLY <94>

	PW4	LPA10160-01A4	SAT_CTL BOARD ASSY	
	R7167	NRSA02J-101X	MG RESISTOR	100Ω,1/10W
	J7108	PU60612	MINI JACK	
	CN7106	QUM022-18A4A4	PARA RIBON WIRE	

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

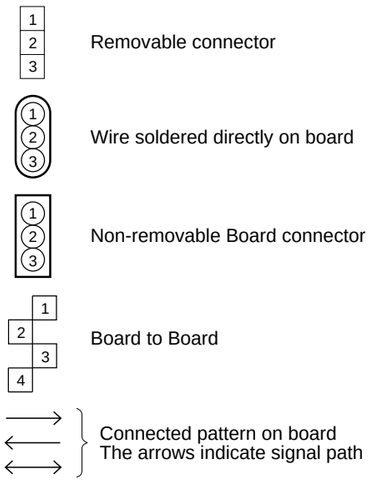
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K or k: kΩ (1000Ω), M: MΩ (1000kΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or 1N4148M (refer to parts list).

2. Indications of control voltage

AUX : Active at high

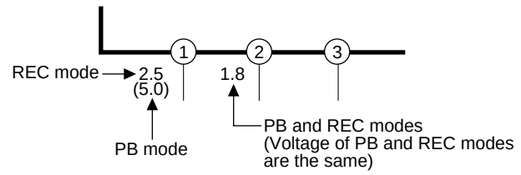
$\overline{\text{AUX}}$ or AUX(L) : Active at low

3. Interpreting Connector indications



4. Voltage measurement

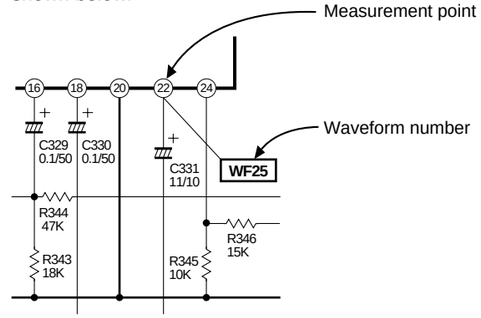
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



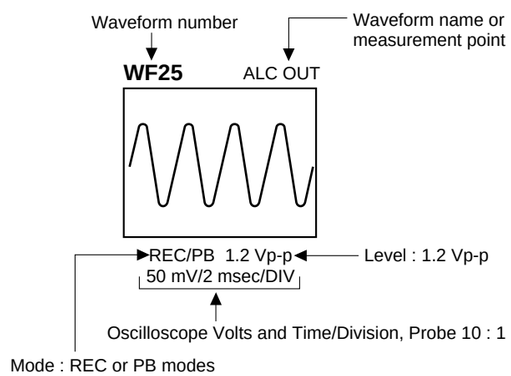
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.

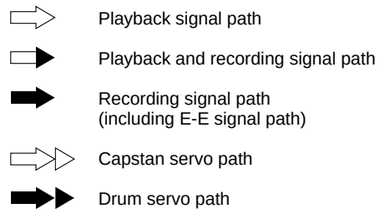


5) Waveform indications



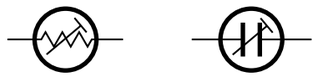
6. Signal path Symbols

The arrows indicate the signal path as follows.



7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

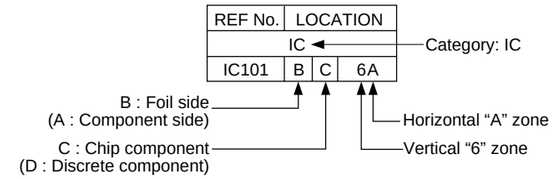
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

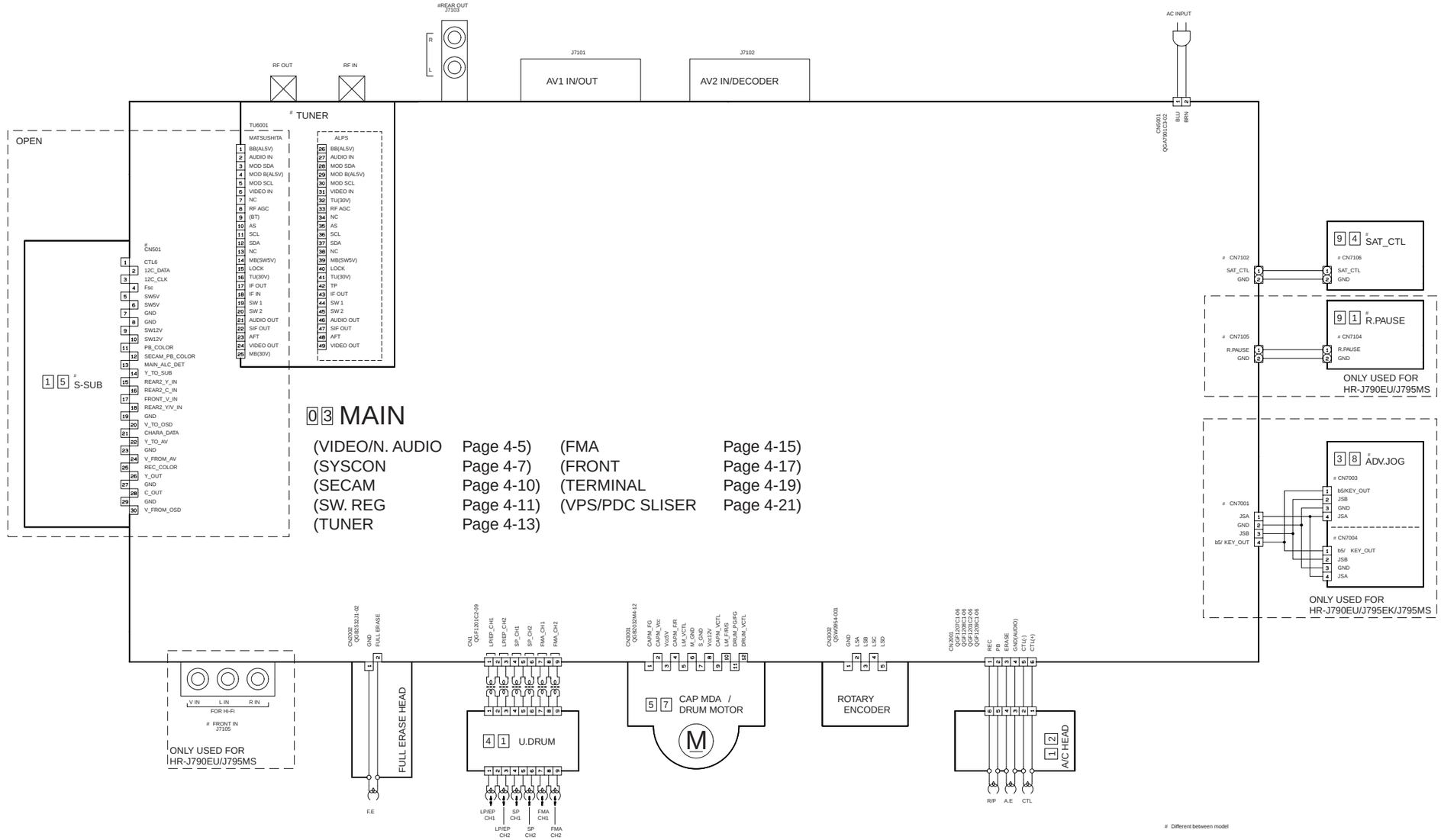
Parts location are indicated by guide scale on the circuit board.



Note:
For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS

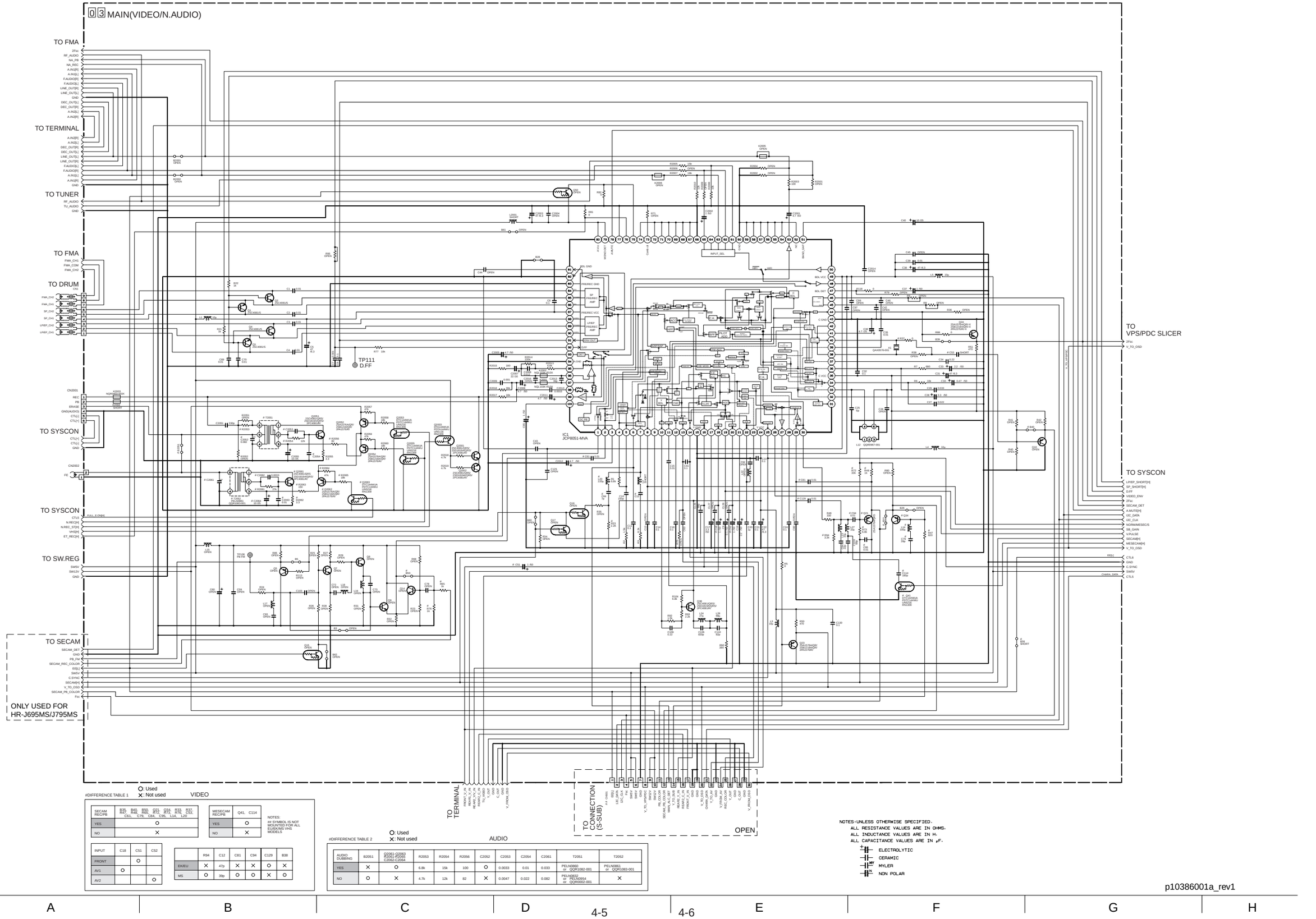
Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



NO	NAME
94	SAT_CTL
91	R.PAUSE
57	CAP MDA
41	U.DRUM
38	ADV.JOG
15	S-SUB
12	A/C HEAD
03	MAIN

4.2 MAIN (VIDEO/N.AUDIO) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



SECAM REC/PB	R35 R47 C61	B40 R48 C79	R50 R65 C84	Q31 R72 C95	C34 R73 L14	R33 R76 L20	R37 C63
YES			○				
NO			×				

MESECAM REC/PB	Q41	C114
YES	○	
NO	×	

INPUT	C18	C51	C52
FRONT		○	
AV1	○		
AV2			○

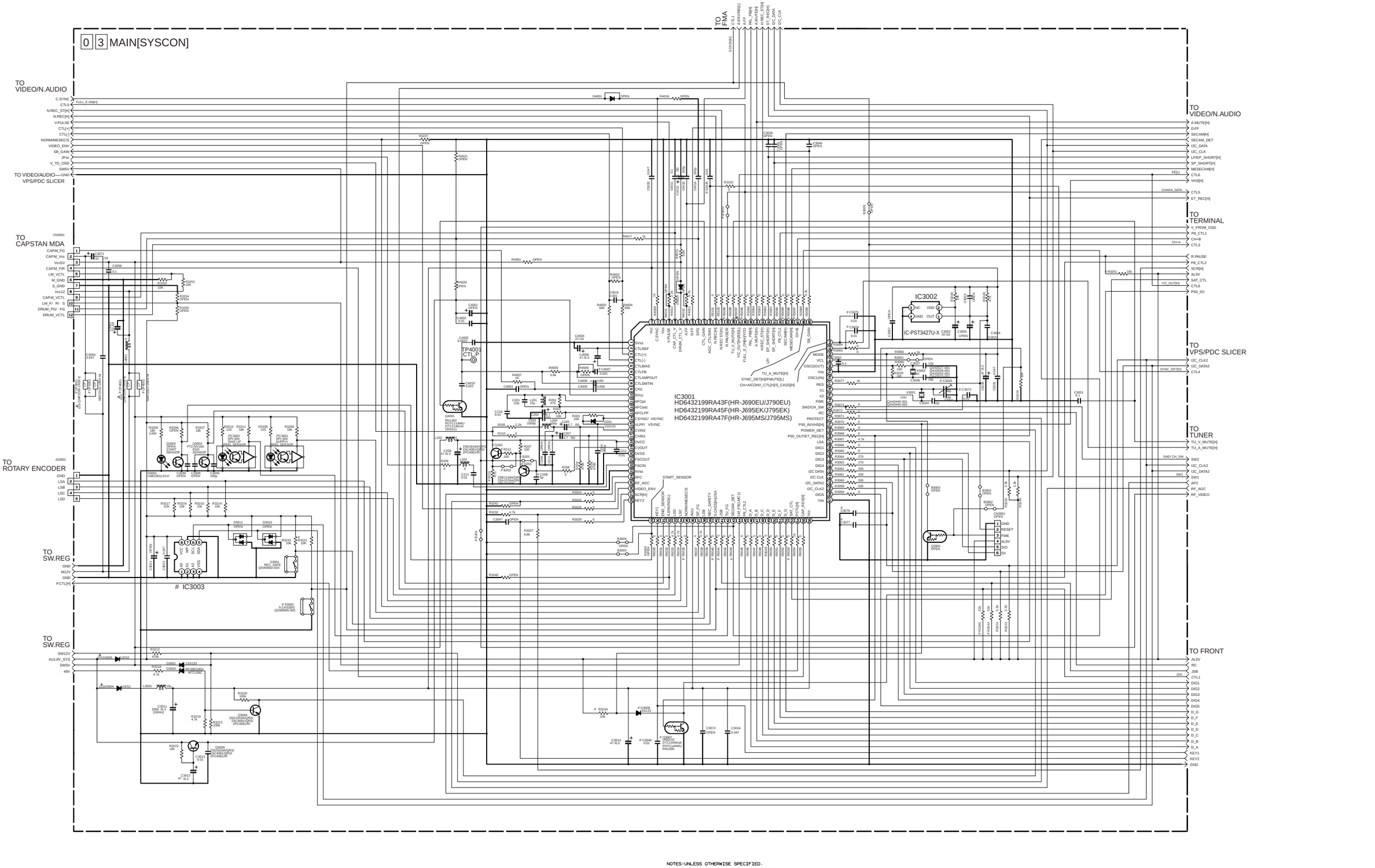
	R94	C12	C81	C94	C129	B38
EK/EU	×	47p	×	×	○	×
MS	○	39p	○	○	×	○

AUDIO DUBBING	B2051	Q2061-Q2063 R2061-R2065 C2062-C2064	R2053	R2054	R2056	C2052	C2053	C2054	C2061	T2051	T2052
YES	×	○	6.8k	15k	100	○	0.0033	0.01	0.033	PELN0860 or QQR1082-001	PELN0861 or QQR1083-001
NO	○	×	4.7k	12k	82	×	0.0047	0.022	0.082	PELN0872 or PELN0954 or QQR0002-001	×

p10386001a_rev1

4.3 MAIN (SYSCON) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p10387001a_rev1.1_1

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.

JVC MODELS ○: Used
#DIFFERENCE TABLE 1 ×: Not used

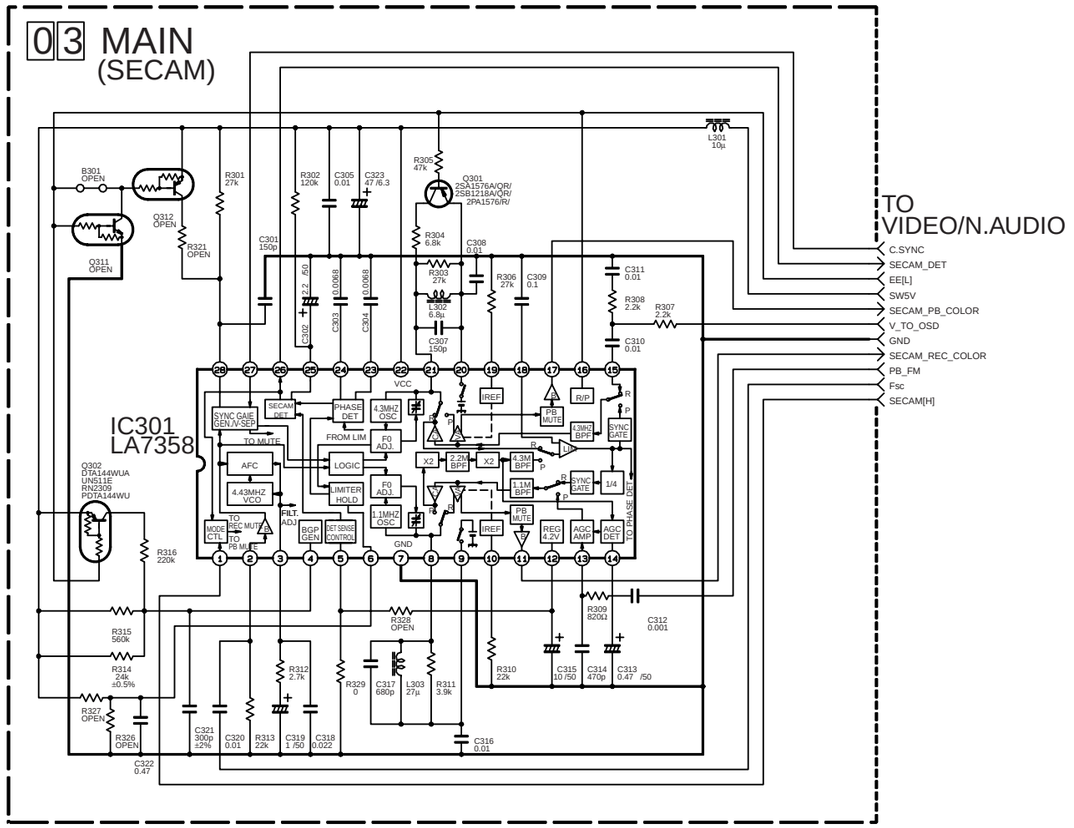
		HR-J690EU	HR-J695EK	HR-J690MS	HR-J790EU	HR-J795EK	HR-J790MS	HR-S5950EU	HR-S5950EK	HR-S5950MS
EEPROM	IC3003	16K	16K	16K	16K	16K	16K	16K	16K	16K
R.PAUSE	R3251	X	X	X	○	X	○	X	X	X
SVHS CHARA_DATA	R3099	X	X	X	○	X	○	○	○	○
A.DUB	B3002	X	X	X	X	X	X	○	○	○
	R3096	X	X	X	○	X	○	○	○	○
ADV.JOG	C4007	X	X	X	○	X	○	X	X	X
	R3244 R3245	X	X	X	○	○	○	X	X	X
S.CASS [H]	R3041	X	X	X	○	○	○	X	X	X
	R3040	X	X	X	○	○	○	○	○	○
	S3002	X	X	X	X	X	X	○	○	○
SAT.CTL	R3221	X	X	X	X	X	X	○	○	○
SECAM	R3053	○	○	○	○	○	○	X	X	X
SVHS/SECAM	R3043 R3089	X	X	○	X	X	○	X	X	○
DECODER	R3097	X	X	○	X	X	○	○	○	○
MESECAM	R3083 R3087	○	X	○	○	X	○	○	○	○
OSD	R3035 R3088	○	X	○	○	X	○	○	X	○
P50	B201	○	○	○	○	○	○	X	X	X
ESD	R207	X	X	X	X	X	X	○	○	○
CURRENT PROTECTOR	Q201 Q202 R211 R212 B203	X	X	X	X	X	X	○	○	○
TRIM CAPACITOR	D3008 R3234 Q3007	○	○	○	○	○	○	X	X	X
	C3048 C3073 C3074 C3075 C3076	○	○	○	○	○	○	X	X	X
	CP3001 CP4001	○	○	○	○	○	○	○	○	○
	CP3002 CP4002	X	X	X	X	X	X	X	X	X
	C3025	○	X	X	○	X	X	○	X	X

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p10387001a_rev1.1_2

4.4 MAIN (SECAM) SCHEMATIC DIAGRAM [HR-J695MS/J795MS]

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.

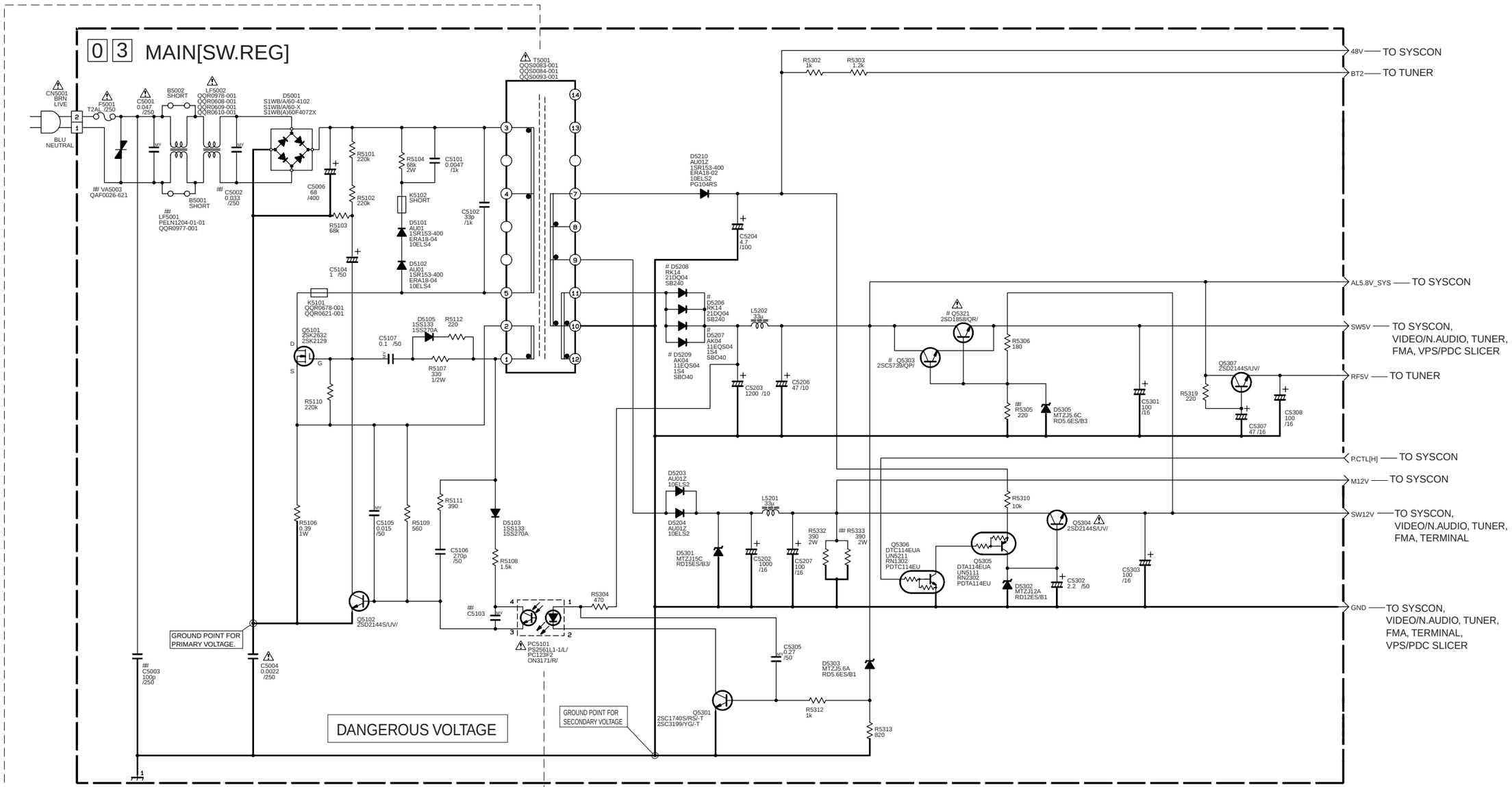


NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p40044001a_rev0

4.5 MAIN (SW.REG) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



##MARK ELEMENTS ARE NOT MOUNTED

#DIFFERENCE TABLE 1

		D5206	D5208	D5207	D5209
S-VHS		NO	NO	YES	YES
VHS	EU,EK,MS	NO	NO	YES	YES
	ASIA	NO	NO	YES	NO

#DIFFERENCE TABLE 2

	Q5321	Q5303
VHS	YES	NO
S-VHS	NO	YES

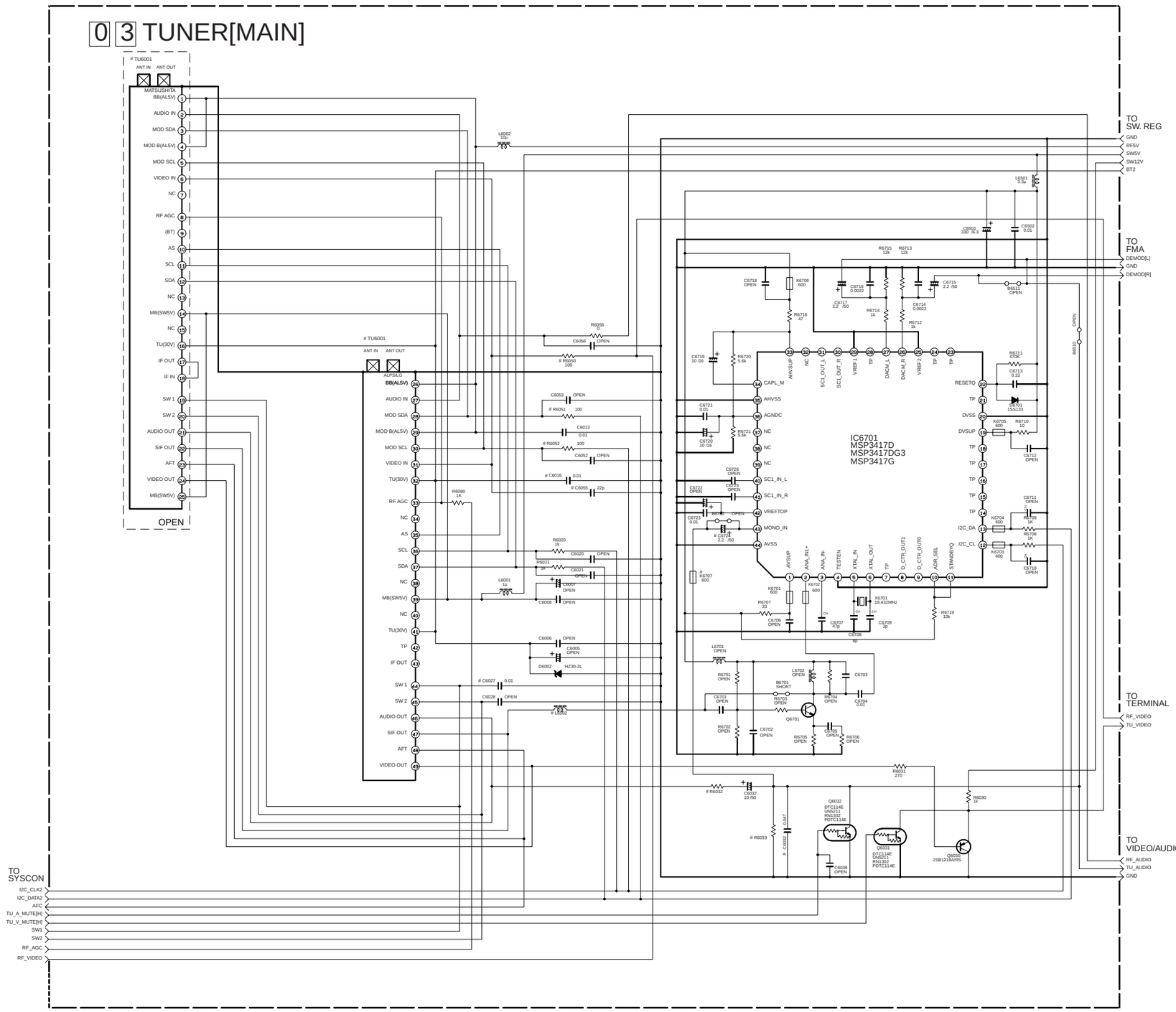
NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20235001a_rev0

4.6 MAIN (TUNER) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



DIFFERENCE TABLE

○: Used
×: Not used

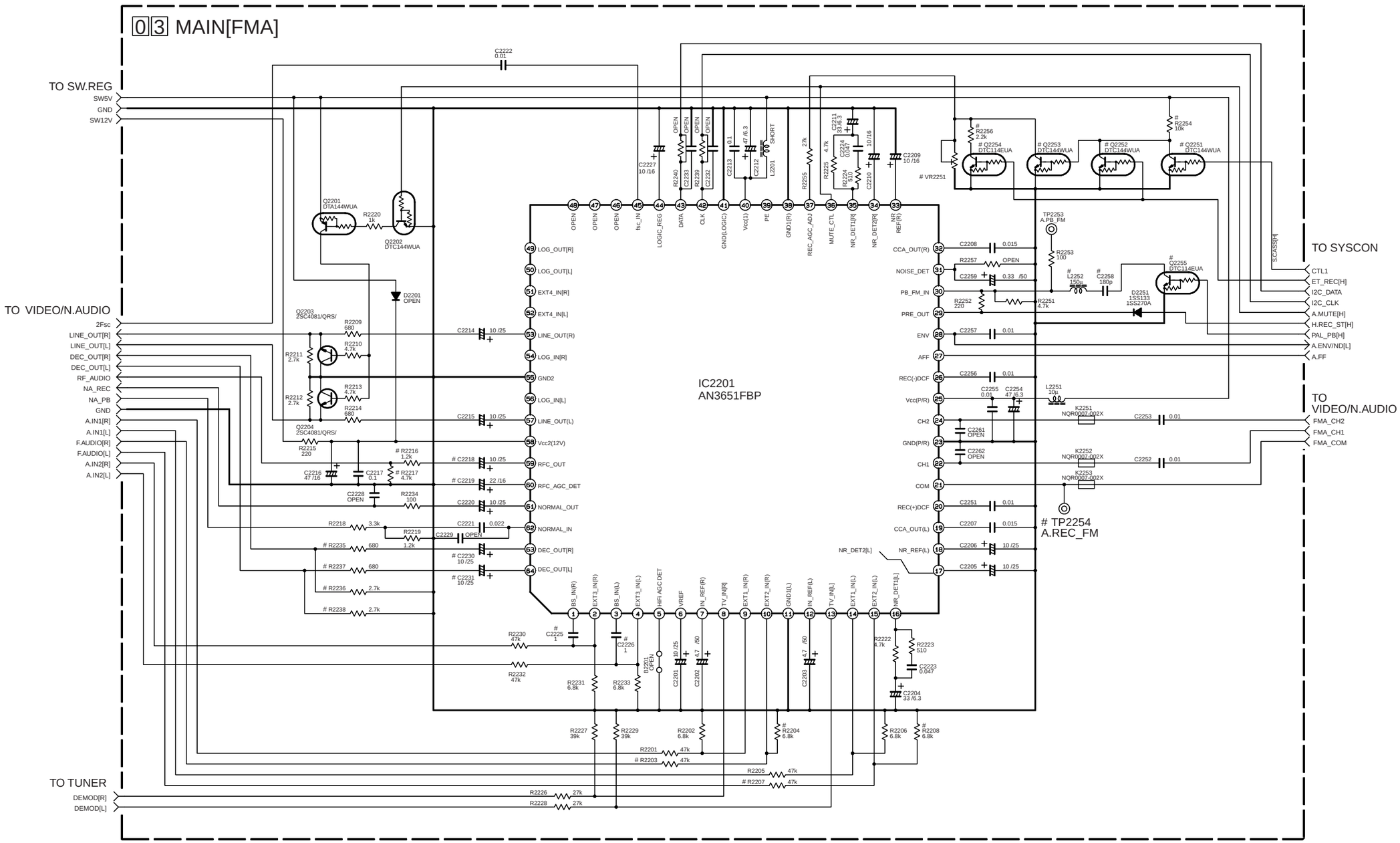
TUNER		EU		EK		FRANCE MS
		With CH+		Without CH+		With CH+
TUNER UNIT	TU6001	MATSUSHITA	ALPS	MATSUSHITA	ALPS	LG
		QAU0262	QAU0263	QAU0262	QAU0261	QAU0266
RF CONVERTER	R6050-R6052,	○	○	○	○	×
	C6055	○	×	○	×	×
TU 30V	C6016	×	○	×	○	×
CENELEC S2C	C6027	×	○	×	○	×
AUDIO OUT	R6032	1.8k	4.7k	1.8k	4.7k	18K
	R6033	2.7k	1.8k	2.7k	1.8k	18K
	C6032	○	○	○	○	×
MONO IN	K6707,C6724	×	×	×	×	○
SIF OUT	L6502	SHORT	SHORT	SHORT	SHORT	1.0μ

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p10388001a_rev0

4.7 MAIN (FMA) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



#DIFFERENCE TABLE 1 ○: Used ×: Not used

FRONT INPUT	R2203	R2204	R2207	R2208
YES	○			
NO	×			

#DIFFERENCE TABLE 2 ○: Used ×: Not used

RF OUT	C2218	C2219	R2216	R2217
YES	○			
NO	×			

#DIFFERENCE TABLE 3 ○: Used ×: Not used

CH+	C2225 C2226 C2230 C2231 R2235-R2238
YES	○
NO	×

#DIFFERENCE TABLE 4 ○: Used ×: Not used

SECAM/MESECAM	Q2255	L2252	C2258
EU/MS	○		
EK	×		

#DIFFERENCE TABLE 5 ○: Used ×: Not used

SVHS	Q2251-Q2254	R2254	R2256	VR2251	TP2254
YES	○			10k(VR)	○
NO	×			SHORT	×

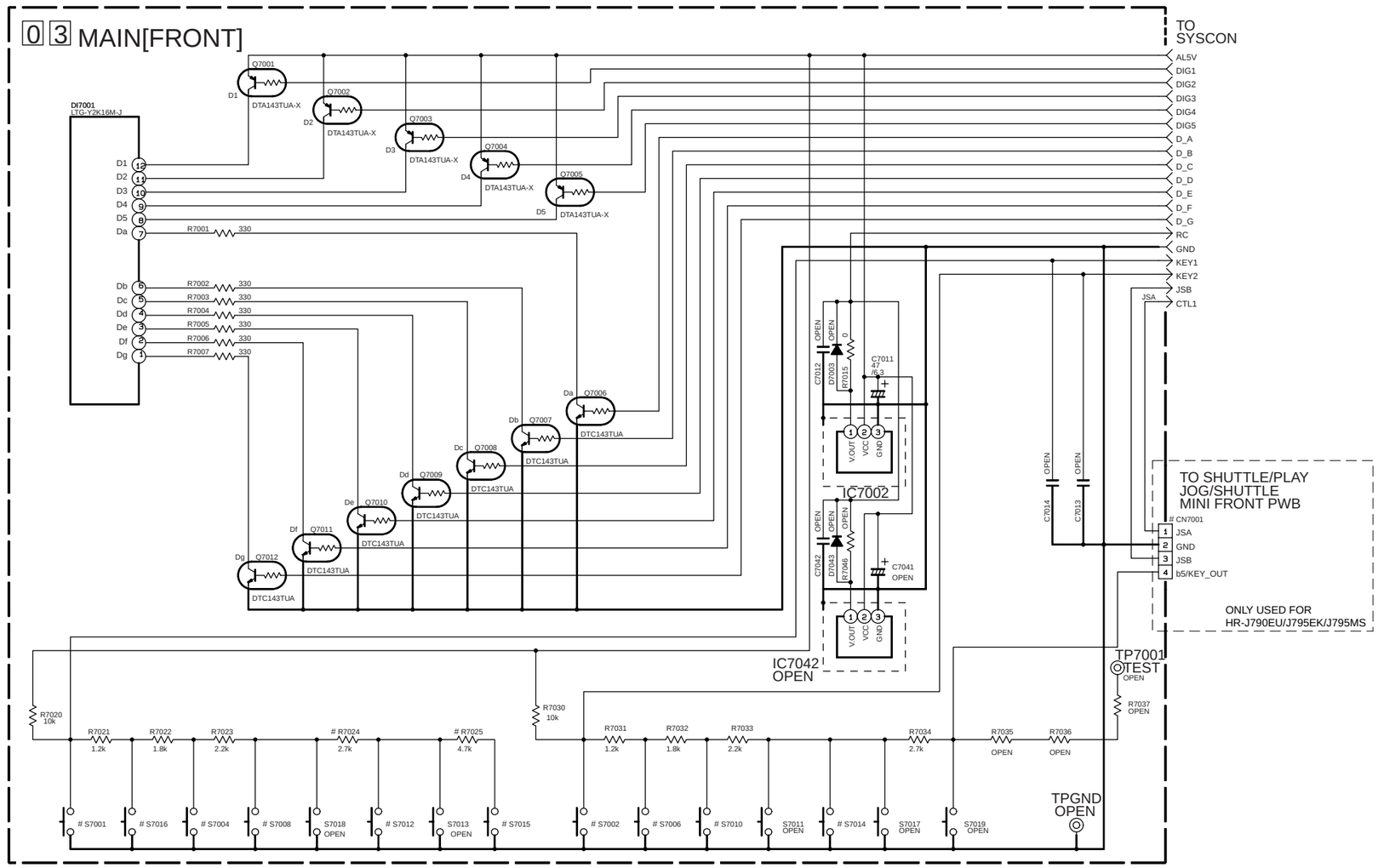
NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p20241001a_rev0.1

4.8 MAIN (FRONT) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



○: Used
×: Not used

DIFFERENCE TABLE

TOOL	MODEL	S7001	S7002	S7004	S7006	S7008	S7010	S7011	S7012	S7013	S7014	S7015	S7016	S7017	S7018	S7019	R7024	R7025	CN7001
400HA	HR-J790EU HR-J795EK HR-J795MS	POWER	ST/EJ	SAT	REC	PAUSE	PLAY	-	24H EXP	-	-	-	A.DUB	-	-	-	O	X	O
400H	HR-J690EU HR-J695EK HR-J695MS	POWER	ST/EJ	CH-	CH+	REC	PAUSE	-	PLAY	-	REW	FF	SAT	-	-	-	O	O	X
	S0	POWER	ST/EJ	CH-	CH+	REC	PAUSE	-	PLAY	-	REW	FF	SET	-	-	-	O	O	X

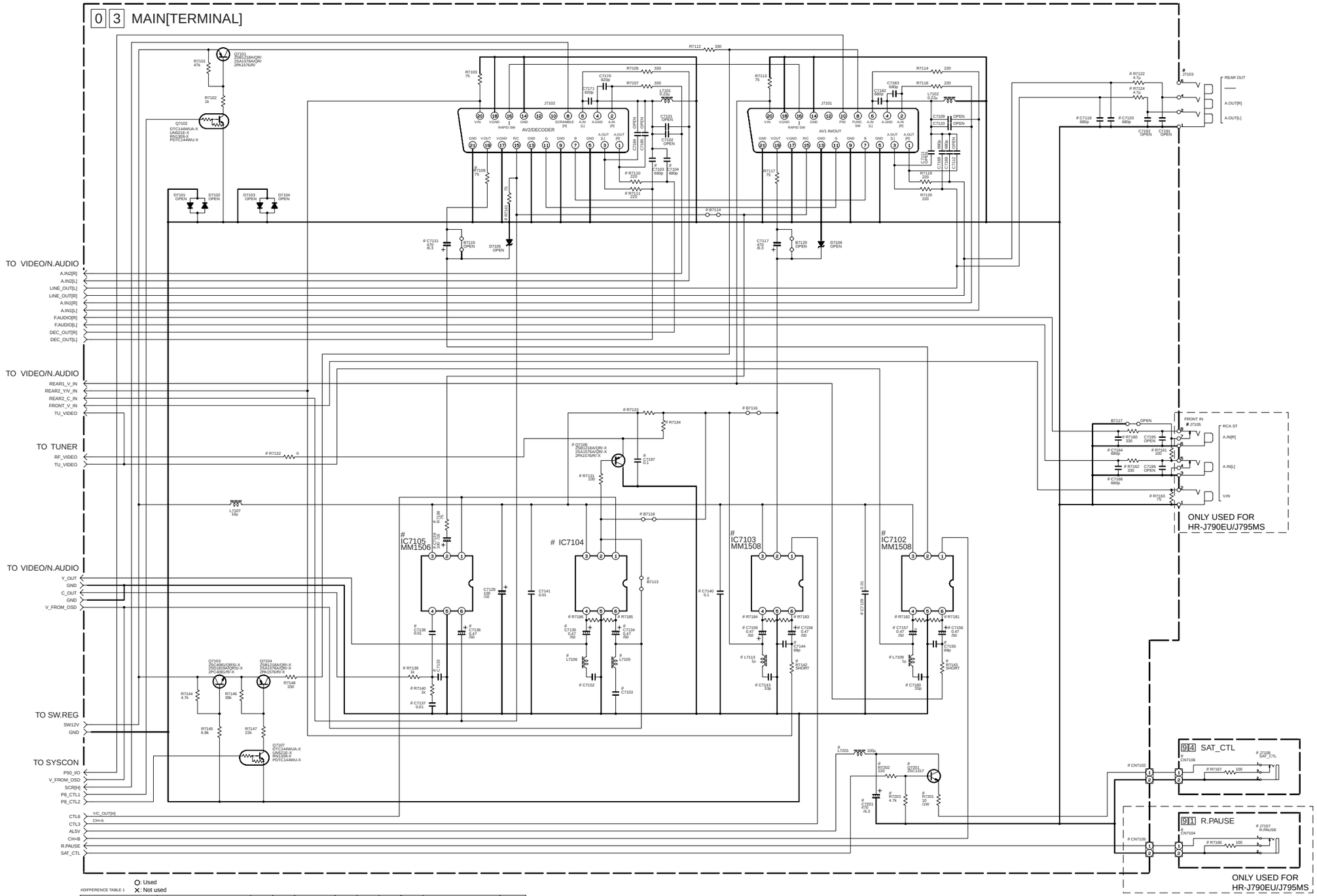
NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MY MYLER
N NON POLAR

p20242001a_rev0

4.9 MAIN (TERMINAL) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



○: Used
×: Not used

#DIFFERENCE TABLE 1

VIDEO			IC7102, IC7103, R7108, R7142, R7143, R7181~ R7184, C7131, C7143, C7144, C7155~ C7160, L7109, L7113	B7116	B7113 R7132	R7133	R7134	Q7106, R7131	B7118	B7114	IC7105, R7138~ R7141, R7185, R7186, C7129, C7133~ C7140, C7152, C7153, L7105, L7106	IC7104
VHS	DECODER	YES	○	×	○	QRE141J-471Y	470	○	×	○	×	×
		NO	×	○	○	QRE121J-331Y	0	○	×	○	×	×
S-VHS	DECODER	YES	○	×	×	QRE141J-471Y	470	○	×	×	○	MM1503
		NO	×	○	×	×	0	×	○	×	○	MM1507

#DIFFERENCE TABLE 2

AUDIO		R7110,R7111 C7103,C7104
DECODER	YES	○
	NO	×

#DIFFERENCE TABLE 3

REAR RCA OUT	R7122 C7120	R7124 C7119
YES	○	
NO	×	

#DIFFERENCE TABLE 4

FRONT IN	J7105, R7160-R7163 C7164,C7166
YES	○
NO	×

#DIFFERENCE TABLE 5

REMOTE PAUSE	J7107 R7166 CN7104,CN7105
YES	○
NO	×

#DIFFERENCE TABLE 6

SAT.CTL	J7108,Q7201,R7167 R7201-R7203,C7201 L7201,CN7102,CN7106
YES	○
NO	×

NOTES:UNLESS OTHERWISE SPECIFIED.

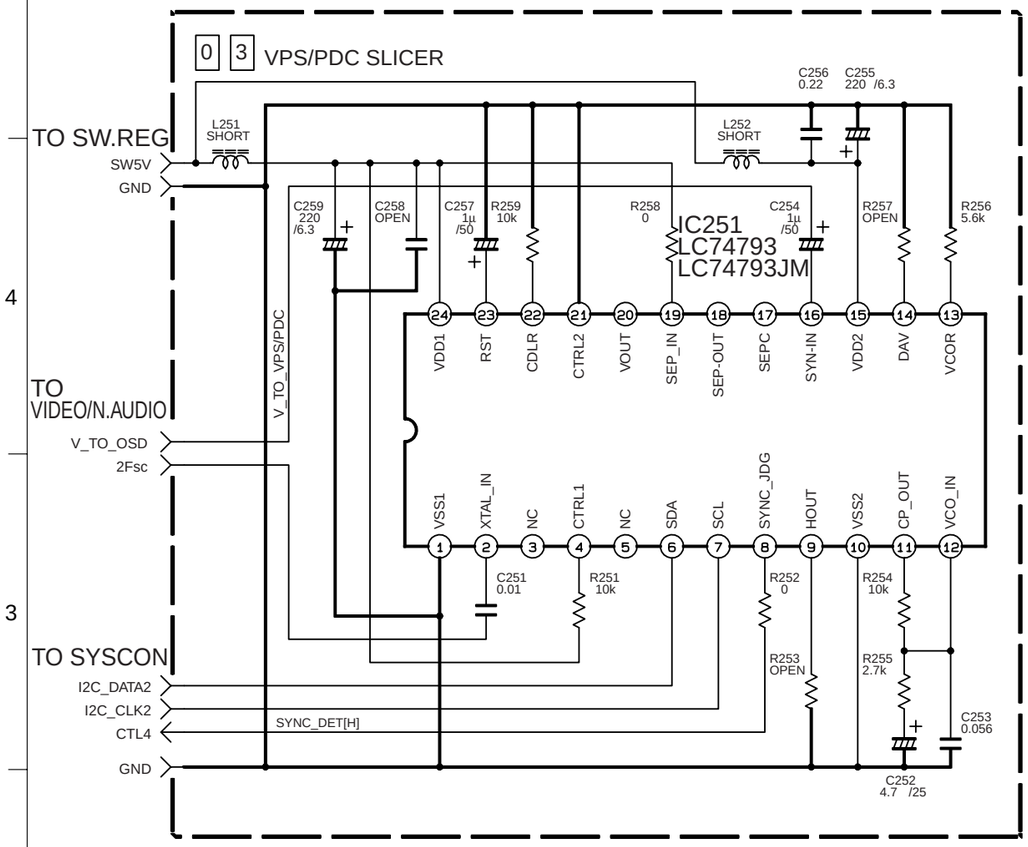
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN μF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p10389001a_rev0

4.10 MAIN (VPS/PDC SLICER) SCHEMATIC DIAGRAM

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



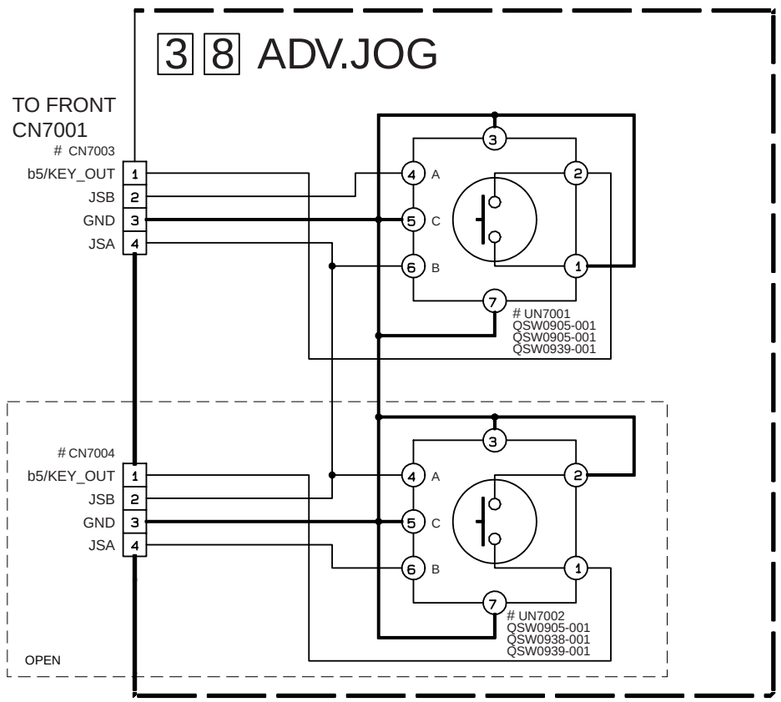
NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p40043001a_rev0.1

4.11 ADV.JOG SCHEMATIC DIAGRAM [HR-J790EU/J795EK/J795MS]

Note : The Parts Number, value and rated voltage etc. in the Schematic Diagram are for references only. When replacing the parts, refer to the Parts List.



DIFFERENCE TABLE ○: Used ×: Not used

	UN7001 CN7003	UN7002 CN7004
400H	○	X
400E	X	○

NOTES:UNLESS OTHERWISE SPECIFIED.
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN H.
ALL CAPACITANCE VALUES ARE IN µF.

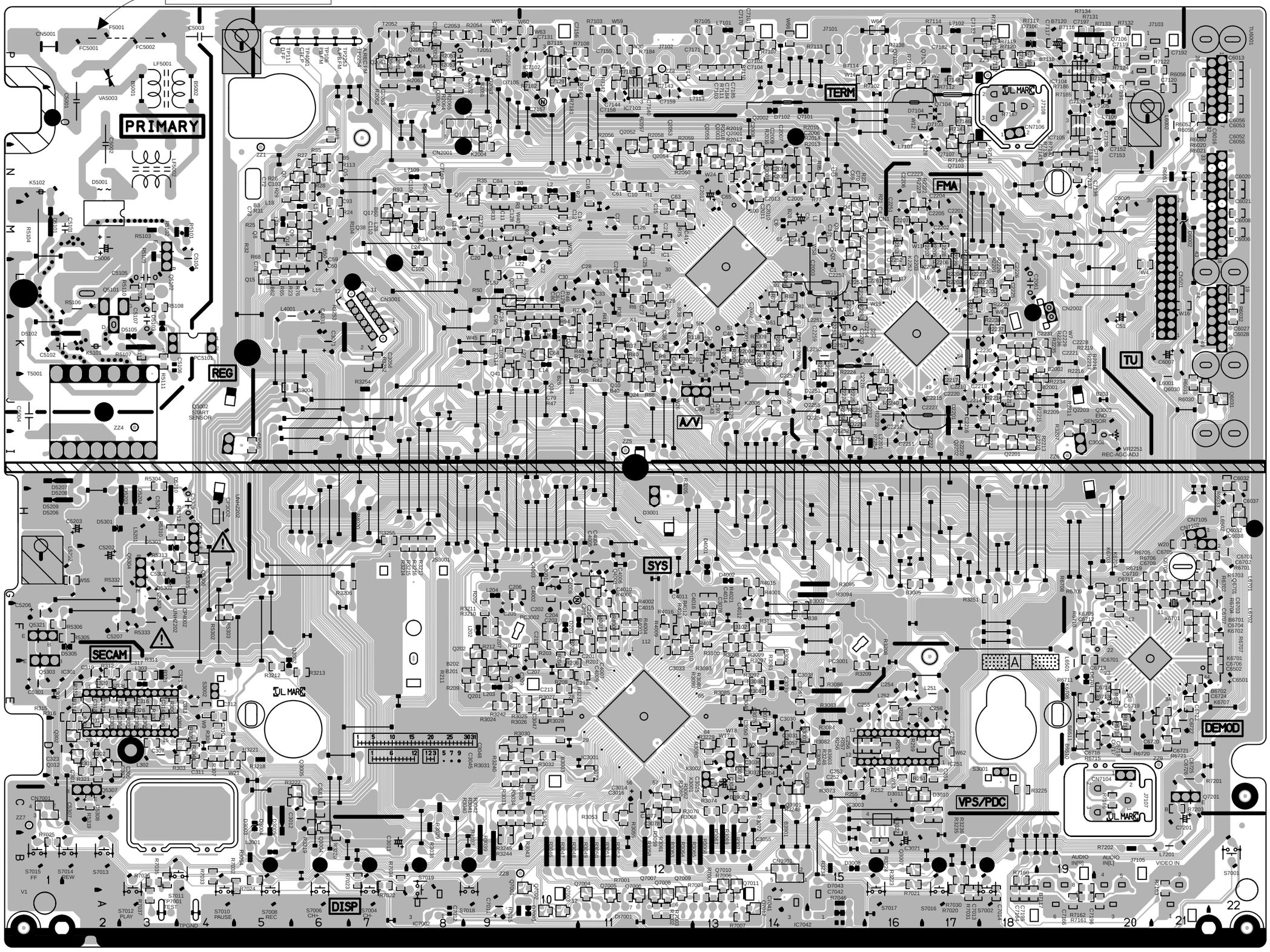
ELECTROLYTIC
CERAMIC
MYLER
NON POLAR

p40045001a_rev0

4.12 MAIN, R.PAUSE AND SAT CTL CIRCUIT BOARDS

<03> MAIN, <91> R.PAUSE, <94> SAT CTL

LPB10160-001D



COMPONENT PARTS LOCATION GUIDE <MAIN> LPB10160-001D

REF.NO.	LOCATION
CAPACITOR	
C1	B C 15L
C2	B C 15M
C3	B C 15M
C4	B C 16M
C5	A D 14M
C6	A D 14M
C7	B C 15N
C8	B C 15N
C9	A D 10M
C10	B C 11N
C11	B C 9N
C12	B C 10N
C13	B C 10N
C14	B C 10M
C15	B C 12M
C16	B C 11N
C17	A D 11M
C18	A D 9M
C19	A D 9M
C20	B C 9M
C21	B C 12M
C22	A D 10M
C23	B C 12M
C24	B C 10L
C25	B C 12L
C26	B C 11L
C27	B C 12L
C28	A D 11L
C29	B C 11K
C30	A D 10L
C31	A D 11L
C32	B C 12L
C33	A D 11L
C34	B C 11K
C35	B C 12K
C36	A D 12K
C37	A D 12K
C38	A D 13K
C39	B C 13K
C40	A D 13K
C41	B C 12M
C42	B C 12K
C43	B C 13J
C44	B C 14M
C45	B C 13J
C46	B C 12K
C51	A D 20K
C52	A D 9M
C53	B C 11K
C59	B C 6M
C60	A D 6L
C61	B C 11N
C63	B C 12M
C64	B C 10K
C65	A D 13N
C69	B C 15N
C70	B C 15N
C72	B C 6N
C73	B C 6M
C78	B C 5L
C79	B C 10K
C80	B C 10L
C81	B C 10L
C84	B C 9N
C92	B C 10M
C93	B C 6N
C94	B C 10K
C95	B C 9K
C97	B C 13J
C99	B C 13J
C103	B C 6N
C106	B C 8L
C108	B C 9K
C109	B C 8M
C110	B C 8M
C114	B C 9K
C125	B C 13J
C126	B C 12M
C127	B C 9M
C128	B C 9M
C129	B C 10L
C130	B C 9L
C201	B C 11F
C202	A D 10F
C203	B C 10F
C204	B C 10F
C205	A D 9F
C206	B C 9G
C207	A D 10E
C208	B C 9E
C209	A D 9E
C210	B C 11F
C211	B C 10F
C212	B C 11E
C213	B C 10E
C251	B C 17D
C252	A D 15D
C253	B C 15D
C254	A D 16E
C255	A D 16E
C256	B C 16D
C257	A D 16D
C258	B C 17D
C259	A D 17E
C301	B C 2D
C302	A D 2D
C303	B C 2D
C304	B C 3D
C305	B C 2D
C307	B C 3D
C308	B C 3D
C309	B C 3D
C310	B C 4D
C311	B C 4D
C312	B C 4E
C313	A D 4E
C314	B C 3E
C315	A D 3E
C316	B C 3E
C317	B C 3E
C318	B C 2E
C319	A D 2E
C320	B C 2E
C321	B C 2E
C322	B C 3E
C323	A D 2D
C2001	A D 13K
C2002	A D 14L
C2003	A D 14L
C2004	B C 14L
C2005	A D 14N
C2006	B C 14N
C2007	A D 14N
C2008	A D 14N
C2009	B C 14N
C2010	B C 14N
C2011	A D 13N
C2012	A D 13M
C2013	B C 14N
C2014	B C 13K
C2015	B C 14N
C2051	B C 8P
C2052	A D 8P
C2053	B C 8P
C2054	B C 8P
C2055	A D 9P
C2056	A D 8P
C2057	B C 14D
C2058	B C 14P
C2059	B C 15P
C2060	A D 15P
C2061	B C 16P
C2062	B C 16P
C2063	B C 15P
C2064	A D 8P
C2065	B C 16P
C2066	B C 16P
C2067	A D 16P
C2068	A D 16P
C2069	B C 16P
C2070	B C 16P
C2071	B C 16P
C2072	B C 16P
C2073	B C 16P
C2074	B C 16P
C2075	B C 14E
C2076	B C 13F
C2077	B C 12C
C2078	B C 12C
C4001	A D 10G
C4002	B C 10G
C4003	B C 10G
C4004	A D 11G
C4005	B C 11G
C4006	A D 11G
C4007	B C 11F
C4008	A D 11G
C4009	B C 11F
C4010	B C 11G
C4011	B C 12F
C4012	A D 13F
C4014	B C 13G
C4015	B C 11F
C4016	B C 13F
C4031	A D 6L
C5001	A D 2P
C5002	A D 2N
C5003	A D 4P
C5004	A D 1J
C5006	A D 2M
C5101	A D 2M
C5102	A D 1K
C5103	B C 3L
C5104	A D 4M
C5105	A D 3L
C5106	A D 3J
C5107	A D 3L
C5202	A D 3G
C5203	A D 2H
C5204	A D 3H
C5206	A D 1F
C5207	A D 3F
C5301	A D 1E
C5302	A D 3G
C5303	A D 3G
C5305	A D 4H
C5307	A D 2C
C5308	A D 2C
C6005	A D 20M
C6006	B C 22M
C6007	A D 21K
C6008	B C 22M
C6013	B C 22P
C6016	B C 21O
C6020	B C 22N
C6021	B C 22N
C6027	B C 22L
C6028	B C 22L
C6032	B C 22I
C6037	A D 22H
C6038	B C 22H
C6052	B C 22O
C6053	B C 22P
C6055	B C 22O
C6056	B C 22P
C6501	A D 22E
C6502	B C 22E
C6701	B C 22G
C6702	B C 21G
C6703	B C 21F
C6704	B C 21F
C6705	B C 21G
C6706	B C 22F
C6707	B C 21F
C6708	B C 21G
C6709	B C 21G
C6710	B C 20G
C6711	B C 20F
C6712	B C 20F
C6713	B C 19F
C6714	B C 20E
C6715	A D 20E
C6716	B C 19D
C6717	A D 20D
C6718	B C 20D
C6719	A D 20E
C6720	A D 21D
C6721	B C 21E
C6722	A D 21E
C6723	B C 21E
C6724	A D 21E
C6725	B C 21D
C6726	B C 21D
C7011	A D 9A
C7012	A D 8A
C7013	B C 17A
C7014	B C 18A
C7041	A D 14A
C7042	A D 15A
C7101	B C 13P
C7102	B C 14P
C7103	B C 13P
C7104	B C 14P
C7109	B C 18P
C7110	B C 18P
C7111	B C 17P
C7112	B C 18P
C7117	A D 19P
C7119	B C 20P
C7120	B C 21O
C7128	A D 17O
C7129	B C 10P
C7131	A D 10P
C7133	B C 19N
C7134	A D 20O
C7135	A D 20O
C7136	A D 19N
C7137	B C 19N
C7138	B C 19O
C7139	A D 19O
C7140	B C 12O
C7141	B C 19N
C7143	B C 12P
C7144	B C 11P
C7152	B C 20O
C7153	B C 20O
C7155	B C 11P
C7156	A D 10P
C7157	A D 10O
C7158	A D 11O
C7159	A D 12O
C7160	B C 8N
C7164	B C 18A
C7166	B C 19A
C7168	B C 18P
C7169	B C 18P
C7170	B C 13P
C7171	B C 13P
C7182	B C 17P
C7183	B C 17P
C7184	B C 13P
C7185	B C 13P
C7191	B C 20O
C7192	B C 21P
C7195	B C 18A
C7196	B C 20A
C7197	B C 19P
C7201	A D 21C
CONNECTOR	
CN1	A D 16M
CN501	A D 21K
CN2001	A D 9O
CN2002	A D 19L
CN3001	A D 7L
CN3901	A D 14B
CN5001	A D 1P
CN7001	A D 1C
CN7102	A D 21H
CN7104	A D 20D
CN7105	A D 21H
CN7106	A D 18O
DIODE	
D201	A D 10F
D2201	A D 17I
D2251	A D 15J
D3001	A D 12H
D3002	A D 5E
D3003	A D 5B
D3004	A D 5C
D3005	A D 5C
D3008	A D 15B
D3010	B C 17C
D3011	B C 16C
D4001	A D 13G
D4002	A D 13G
D5001	B C 2M
D5101	A D 1M
D5102	A D 2K
D5103	A D 3K
D5105	A D 3K
D5203	A D 3I
D5204	A D 3I
D5206	A D 2H
D5207	A D 2I
D5208	A D 2I
D5209	A D 2H
D5210	A D 3I
D5301	A D 2H
D5302	A D 4G
D5303	A D 4G
D5305	A D 2F
D6002	A D 21M
D6701	A D 19E
D7003	A D 10A
D7043	A D 15A
D7101	A D 14O
D7102	A D 14O
D7103	B C 17O
D7104	B C 17O
D7105	A D 9P
D7106	A D 18P
FUSE	
F5001	A D 2P
FC5001	A D 2P
FC5002	A D 3P
IC	
IC1	B C 13L
IC251	A D 17D
IC301	A D 2E
IC2201	B C 16K
IC3001	B C 12E
IC3002	B C 14D
IC3003	B C 16C
IC6701	B C 20F
IC7002	A D 8A
IC7042	A D 15A
IC7102	B C 10P
IC7103	B C 12O
IC7104	B C 19P
IC7105	B C 19O
COIL	
L1	A D 15M
L2	A D 10N
L3	A D 9L
L4	A D 11L
L5	A D 13J
L12	A D 12L
L13	A D 10K
L14	A D 10K
L15	A D 6L
L17	A D 6N
L18	A D 6M
L19	A D 5M
L20	A D 9N
L22	A D 9M
L24	A D 8M
L27	A D 10K
L28	A D 8M
L201	A D 11F
L202	A D 9F
L203	A D 9E
L204	A D 9G
L251	A D 17E
L252	A D 16E
L301	A D 2E
L302	A D 3D
L303	A D 3E
L2001	A D 14K
L2201	A D 16I
L2251	A D 15L
L2252	A D 15K
L3001	A D 5B
L4001	A D 5L
L5201	A D 3H
L5202	A D 2G
L6001	A D 21J
L6002	A D 21O
L6501	A D 19E
L6502	A D 22G
L6701	A D 22G
L6702	A D 22F
L7101	A D 13P
L7102	A D 17P
L7105	A D 20O
L7106	A D 20O
L7107	A D 16O
L7109	A D 8N
L7113	A D 13O
L7201	A D 21B
TRANSISTOR	
Q1	B C 15M
Q2	B C 15M
Q3	B C 15M
Q4	B C 15M
Q5	B C 6N
Q7	B C 6N
Q8	B C 5M
Q9	B C 6M
Q10	B C 11K
Q14	B C 6M
Q15	B C 5L
Q16	B C 9N
Q17	B C 7M
Q21	B C 10K
Q23	B C 9L
Q24	B C 12J
Q34	B C 10K
Q38	B C 7M
Q41	B C 9K
Q50	B C 14K
Q201	B C 9E
Q202	B C 9F
Q301	B C 4D
Q302	B C 2D
Q311	B C 2D
Q312	B C 2D
Q2001	B C 13N
Q2002	B C 14N
Q2003	B C 13N
Q2051	B C 8P
Q2052	B C 11N
Q2053	B C 12N
Q2054	B C 12N
Q2055	B C 13N
Q2061	B C 7P
Q2062	B C 8P
Q2063	B C 9P
Q2201	B C 18I
Q2202	B C 18I
Q2203	B C 18J
Q2204	B C 18J
Q2251	B C 15I
Q2252	B C 15J
Q2253	B C 15J
Q2254	B C 15J
Q2255	B C 15J
Q3002	A D 5I
Q3003	A D 19I
Q3004	B C 6C
Q3005	B C 6C
Q3007	B C 16B
Q3901	B C 14C
Q4001	B C 11G
Q5101	A D 2L
Q5102	A D 3M
Q5301	A D 4G
Q5303	A D 1F
Q5304	A D 3G
Q5305	B C 4G
Q5306	B C 4G
Q5307	A D 2C
Q5321	A D 1F
Q6030	B C 21J
Q6031	B C 22J
Q6032	B C 22H
Q6701	B C 21G
Q7001	B C 10B
Q7002	B C 10A
Q7003	B C 10A
Q7004	B C 11A
Q7005	B C 11A
Q7006	B C 12A
Q7007	B C 12A
Q7008	B C 12A
Q7009	B C 12A
Q7010	B C 13B
Q7011	B C 13B
Q7012	B C 14A
Q7101	B C 17P
Q7102	B C 16P
Q7103	B C 17N
Q7104	B C 17O
Q7106	B C 20P
Q7107	B C 17O
Q7201	A D 21C
RESISTOR	
R1	B C 12N
R2	A D 10N
R3	B C 10N
R5	B C 10L
R6	B C 12L
R7	B C 11K
R8	B C 12K
R9	B C 12K
R21	B C 16M
R22	B C 15N
R23	B C 6L
R24	B C 6M
R25	B C 5M
R26	B C 6N
R27	B C 6N
R28	B C 6N
R29	B C 5N
R31	B C 6M
R32	B C 5M
R33	B C 9N
R34	B C 8M
R35	B C 9N
R36	B C 12K
R37	B C 11K
R38	B C 11K
R40	B C 12K
R41	B C 11K
R42	B C 11K
R46	B C 10L
R47	B C 10K
R48	B C 11K
R50	A D 9L
R51	B C 10J
R65	B C 5L
R68	B C 5M
R71	B C 14L
R72	B C 11K
R73	B C 9K
R75	B C 12M
R76	B C 6L
R77	B C 15N
R79	B C 12K
R80	B C 10K
R81	B C 14L
R82	B C 14L
R85	B C 6N
R88	B C 12J
R90	B C 8M
R92	B C 8M
R93	B C 7N
R94	B C 10K
R95	B C 15N
R104	B C 7M
R113	B C 6N
R118	B C 13K
R201	B C 11F
R202	B C 10F
R203	B C 10F
R204	B C 10F
R205	B C 9F
R206	B C 10E
R207	B C 9F
R208	B C 10E
R209	B C 9E
R210	B C 10F
R211	B C 9E
R212	B C 9F
R251	B C 16C
R252	B C 16C
R253	B C 16D
R254	B C 16D
R255	B C 15C
R256	B C 15D
R257	B C 16D
R258	B C 16E
R259	B C 16D
R301	B C 2D
R302	B C 2D
R303	B C 4D
R304	B C 4D
R305	B C 4D
R306	B C 3D
R307	B C 4D
R308	B C 4D
R309	B C 3E
R310	B C 3E
R311	B C 3E
R312	B C 2E
R313	B C 2E
R314	B C 2E
R315	B C 2E
R316	B C 2D
R321	B C 2D
R326	B C 3E
R327	B C 3D
R328	A D 3E
R329	B C 3E
R2001	B C 13K
R2002	B C 13K
R2003	B C 13K
R2004	B C 13K
R2005	B C 14K
R2006	B C 14K
R2007	B C 14K
R2008	B C 14K
R2009	B C 14K
R2010	B C 14K
R2013	B C 14N
R2014	B C 14N
R2015	B C 14N
R2016	B C 14N
R2017	B C 13N
R2018	B C 13N
R2019	B C 13N
R2051	B C 8P
R2052	B C 8P
R2053	B C 8P
R2054	B C 9P
R2055	B C 8P
R2056	B C 11O
R2057	B C 12N
R2058	B C 12O
R2059	B C 12N
R2060	B C 13N
R2061	B C 7P
R2062	B C 7P
R2063	A D 8P
R2064	B C 8P
R2065	B C 8P
R2201	B C 17L
R2202	B C 17L
R2203	B C 17L
R2204	B C 17L
R2205	B C 17M
R2206	B C 17L
R2207	B C 17M
R2208	B C 17L
R2209	B C 18I
R2210	B C 18I
R2211	B C 18J
R2212	B C 18J
R2213	B C 18I
R2214	B C 18J
R2215	B C 18J
R2216	B C 18J
R2217	B C 18K
R2218	B C 19K
R2219	B C 19K
R2220	B C 18I
R2222	B C 17M
R2223	B C 16M
R2224	B C 15J
R2225	B C 15J
R2226	B C 18L
R2227	B C 17L
R2228	B C 18L
R2229	B C 17L
R2230	B C 18L
R2231	B C 17L
R2232	B C 18L
R2233	B C 17L
R2234	B C 19J
R2235	B C 18K
R2236	B C 18K
R2237	B C 18K
R2238	B C 18K
R2239	B C 16J
R2240	B C 16J
R2251	B C 15K
R2252	B C 15L
R2253	B C 15K
R2254	A D 16I
R2255	B C 15J
R2256	B C 15J
R2257	B C 15K
R3024	B C 9E
R3025	B C 10E
R3026	B C 10E
R3027	B C 10E
R3028	B C 10E
R3029	A D 8C
R3030	B C 10D
R3031	B C 9D
R3032	B C 10D
R3033	B C 9C
R3034	B C 9C
R3035	B C 10D
R3037	A D 9B
R3038	A D 8B
R3039	A D 9B
R3040	B C 9C
R3041	B C 9C
R3042	B C 9C
R3043	B C 10C
R3045	B C 10C
R3046	A D 10B
R3047	A D 10B
R3048	A D 10B
R3049	A D 11B
R3050	A D 11B
R3051	A D 11B
R3052	A D 11B
R3053	B C 11C
R3054	A D 5B
R3055	B C 11C
R3058	A D 12B
R3059	B C 12C
R3060	B C 12C
R3061	B C 12C
R3062	B C 12C
R3063	A D 12B
R3064	A D 12B
R3065	A D 12B
R3066	A D 13B
R3067	A D 13B
R3068	B C 13C
R3069	A D 13B
R3070	B C 13C
R3071	A D 13B
R3072	B C 13C
R3073	A D 15C
R3074	B C 13C
R3077	B C 13D
R3080	B C 13D
R3082	B C 15D
R3083	A D 15E
R3084	A D 15D
R3085	B C 13E
R3086	A D 15E
R3087	B C 14E
R3088	B C 14E
R3089	B C 13E
R3090	B C 13E
R3091	A D 14E
R3092	B C 14E
R3093	B C 13E
R3094	A D 15G
R3095	A D 15G
R3096	B C 14F
R3097	B C 14F
R3098	B C 13F
R3099	B C 14F
R3100	B C 13F
R3101	B C 14F
R3102	B C 13F
R3205	A D 12I
R3206	B C 6G
R3207	B C 19J
R3208	B C 16E
R3209	B C 15E
R3210	B C 9F
R3211	B C 9F
R3212	B C 5E
R3213	B C 6E
R3214	B C 7H
R3215	B C 8H
R3216	B C 8H
R3217	B C 8H
R3218	A D 5D
R3219	B C 6C
R3220	B C 6B
R3221	B C 5D
R3222	B C 6C
R3223	B C 16B
R3224	B C 16B
R3225	B C 18C
R3229	B C 13D
R3232	B C 10E
R3234	A D 15B
R3235	B C 17C
R3236	B C 17C
R3237	B C 10D
R3240	B C 10D
R3242	B C 9E
R3244	B C 9B
R3245	B C 9C
R3246	B C 14D
R3248	B C 14C
R3251	B C 18G
R3252	B C 7K
R3253	A D 6K
R3254	A D 7J
R3255	B C 7H
R4001	B C 14G
R4002	B C 11F
R4003	B C 11F
R4004	B C 11F
R4005	B C 11G
R4006	B C 11F
R4007	B C 11F
R4009	B C 12F
R4010	B C 13F
R4011	B C 13F
R4012	B C 12F
R4013	B C 12F
R4015	B C 14G
R4016	B C 12F
R4017	B C 13F
R4020	A D 7H
R4021	B C 13G
R4022	B C 13F
R5101	A D 4M
R5102	A D 4M
R5103	A D 3M
R5104	A D 1L
R5106	A D 2L
R5107	A D 3K
R5108	B C 3L
R5109	A D 3M
R5110	B C 3L
R5111	B C 3K
R5112	B C 3K
R5302	B C 4F
R5303	B C 4F
R5304	B C 3I
R5305	B C 2F
R5306	B C 1F
R5310	B C 3H
R5312	B C 4H
R5313	B C 4G
R5319	B C 2C
R5332	A D 2G
R5333	A D 3F
R6020	B C 21N
R6021	B C 21N
R6030	B C 21J
R6031	B C 21J
R6032	B C 22K
R6033	B C 22I
R6050	B C 21O
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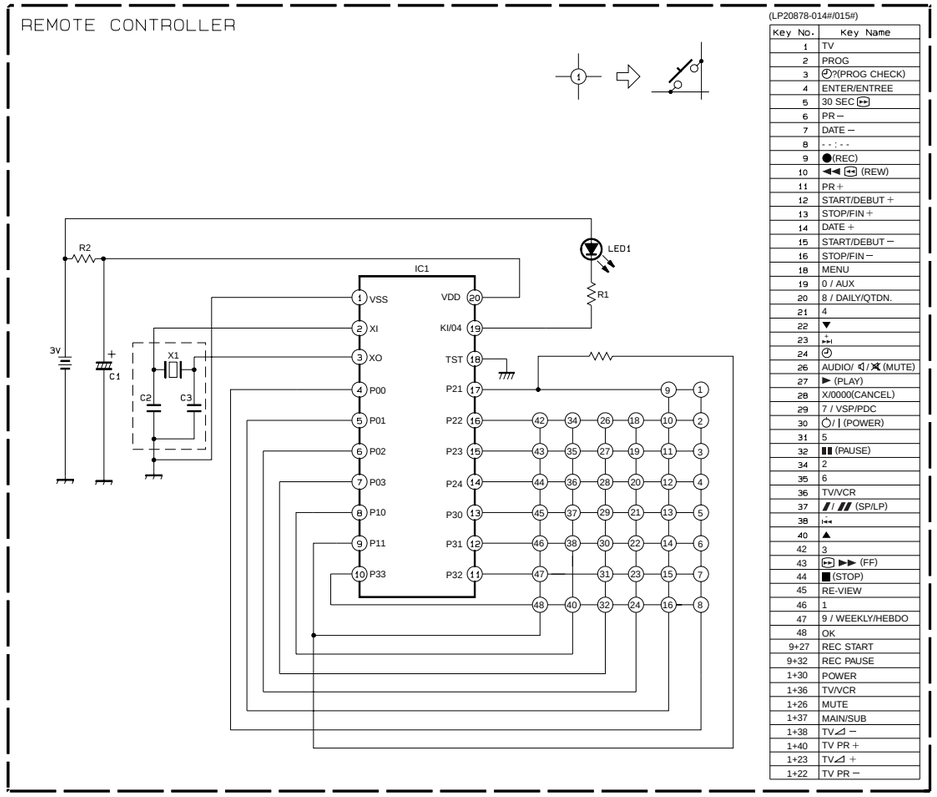
R6706	B C 17O
R6707	B C 22F
R6708	B C 20G
R6709	B C 20G
R6710	B C 19F
R6711	B C 19E
R6712	B C 20E
R6713	B C 20E
R6714	B C 20D
R6715	B C 19D
R6716	B C 20D
R6719	B C 20G
R6720	A D 21D
R6721	B C 21D
R7001	B C 11A
R7002	B C 12A
R7003	B C 12A
R7004	B C 13A
R7005	B C 13A
R7006	B C 13A
R7007	B C 13A
R7015	A D 9A
R7020	B C 17B
R7021	B C 16B
R7022	B C 7B
R7023	B C 7B
R7024	B C 5B
R7025	B C 1B
R7030	B C 17B
R7031	B C 17A
R7032	B C 5B
R7033	B C 4B
R7034	B C 7B
R7035	B C 3B
R7036	B C 3B
R7037	B C 3A
R7046	A D 15A
R7101	B C 16P
R7102	B C 16P
R7103	B C 11P
R7105	B C 13P
R7107	B C 14P
R7108	B C 11P
R7110	B C 13P
R7111	B C 13P
R7112	A D 17P
R7113	B C 15P
R7114	B C 17P
R7116	B C 18P
R7117	A D 19P
R7119	B C 18P
R7120	B C 18P
R7122	B C 21P
R7124	B C 20P
R7131	B C 19P
R7132	B C 20P
R7133	A D 20P
R7134	B C 19P
R7138	B C 16P
R7139	B C 19N
R7140	B C 19N
R7141	B C 12P
R7142	B C 11P
R7143	B C 11P
R7144	B C 18N
R7145	B C 17O
R7146	B C 17O
R7147	B C 17O
R7148	B C 17P
R7160	B C 18B
R7161	B C 19A
R7162	B C 19B
R7163	B C 21B
R7166	B C 20C
R7167	B C 18O
R7181	B C 10O
R7182	B C 10P
R7183	B C 11P
R7184	B C 12P
R7185	B C 19O
R7186	B C 19P
R7201	A D 21C
R7202	A D 20B
R7203	B C 21C
SWITCH	
S3001	A D 18C
S3002	A D 4E
S7001	A D 22B
S7002	A D 18B
S7004	A D 7B
S7006	A D 6B
S7008	A D 5B
S7010	A D 4B
S7011	A D 4B
S7012	A D 3B
S7013	A D 2B
S7014	A D 2B
S7015	A D 1B
S7016	A D 17B
S7017	A D 16B
S7018	A D 9B
S7019	A D 8B
TESTPOINT	
TP106	A D 6P
TP111	A D 5P
TP2253	A D 6P
TP2254	A D 7P
TP4001	A D 6P
TP7001	A D 3A
TPGND	A D 4A
OTHER	
CP3001	A D 4H
CP3002	B C 4H
CP4001	A D 3G
CP4002	B C 4G
DI7001	A D 12A
J7101	A D 16P
J7102	A D 12P
J7103	A D 21Q
J7105	A D 20A
J7107	A D 20C
J7108	A D 19O
JS3001	A D 8G
LF5001	A D 4P
LF5002	A D 3N
PC3001	A D 15F
PC3002	A D 9F
PC5101	A D 4K
T2051	A D 9P
T2052	A D 7P
T5001	A D 1K
TU6001	A D 22P
VA5003	A D 2O
VR2251	A D 20I
X1	A D 12K
X3001	A D 13C
X3002	A D 13D
X6701	A D 21G

4.13 REMOTE CONTROLLER SCHEMATIC DIAGRAM

NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entire unit only.

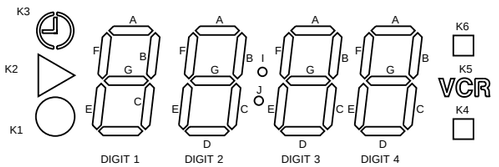


(LP20878-014#/015#)

Key No.	Key Name
1	TV
2	PROG
3	?(PROG CHECK)
4	ENTER/ENTREE
5	30 SEC
6	PR –
7	DATE –
8	- - : - -
9	●(REC)
10	◄◄ (REW)
11	PR +
12	START/DEBUT +
13	STOP/FIN +
14	DATE +
15	START/DEBUT –
16	STOP/FIN –
18	MENU
19	0 / AUX
20	8 / DAILY/QTDN.
21	4
22	▼
23	
24	
26	AUDIO/ (MUTE)
27	► (PLAY)
28	X/0000(CANCEL)
29	7 / VSP/PDC
30	/ I (POWER)
31	5
32	▮▮ (PAUSE)
34	2
35	6
36	TV/VCR
37	/ (SP/LP)
38	
40	▲
42	3
43	►► (FF)
44	■ (STOP)
45	RE-VIEW
46	1
47	9 / WEEKLY/HEBDO
48	OK
9+27	REC START
9+32	REC PAUSE
1+30	POWER
1+36	TV/VCR
1+26	MUTE
1+37	MAIN/SUB
1+38	TV –
1+40	TV PR +
1+23	TV +
1+22	TV PR –

4.14 FDP GRID ASSIGNMENT AND ANODE CONNECTION

GRID ASSIGNMENT



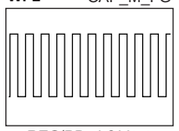
ANODE CONNECTION

No.	CONNECTION
1	CATHODE 1G, 2G, 3G, 4G, I, J
2	CATHODE 1F, 2F, 3F, 4F, K6
3	CATHODE 1E, 2E, 3E, 4E, K1
4	CATHODE 1D, 2D, 3D, 4D, K4
5	CATHODE 1C, 2C, 3C, 4C, K5
6	CATHODE 1B, 2B, 3B, 4B, K2
7	CATHODE 1A, 2A, 3A, 4A, K3
8	COMMON ANODE K3, K2, K5, K4, K1, K6, I, J
9	COMMON ANODE DIGIT 4
10	COMMON ANODE DIGIT 3
11	COMMON ANODE DIGIT 2
12	COMMON ANODE DIGIT 1

4.15 WAVEFORMS

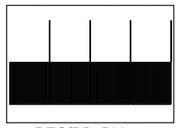
< SYSCON >

WF1 CN3001-1 CAP_M_FG



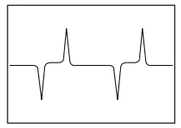
REC/PB 4.6 Vp-p
0.1 V/0.5 msec/DIV

WF2 CN3001-11 D. PG/FG



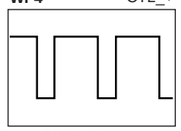
REC/PB 5 Vp-p
0.1 V/5 msec/DIV

WF3 TP4001 CTL.P



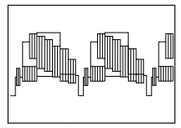
PB 2.7 Vp-p
50 mV/5 msec/DIV

WF4 IC3001-3 CTL_+



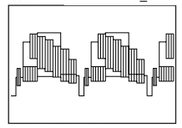
REC 4.2 Vp-p
0.1 V/5 msec/DIV

WF5 IC3001-17 CV_IN_1



REC/PB 2 Vp-p
50 mV/5 µsec/DIV

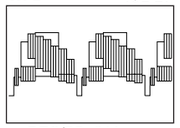
WF6 IC3001-19 CV_OUT



REC/PB 2 Vp-p
50 mV/5 µsec/DIV

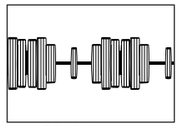
< VIDEO >

WF1 IC1-27



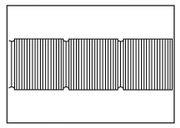
REC/PB 2 Vp-p
50 mV/5 µsec/DIV

WF2 IC1-30



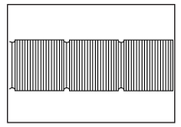
PB 0.6 Vp-p
20 mV/5 µsec/DIV

WF3 IC1-1



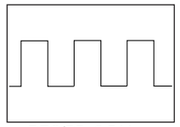
PB 0.4 Vp-p
20 mV/5 msec/DIV

WF4 TP106 PB.FM



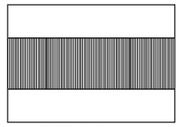
PB 0.4 Vp-p
20 mV/5 msec/DIV

WF5 TP111 D.FF



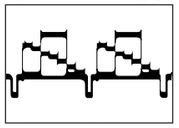
REC/PB 3.5 Vp-p
0.1 V/5 msec/DIV

WF6 IC1-85



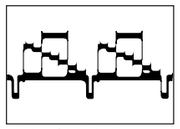
REC 1.2 Vp-p
50 mV/2 msec/DIV

WF7 IC1-13



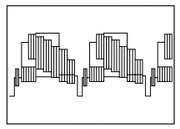
REC/PB 0.48 Vp-p
10 mV/5 µsec/DIV

WF8 IC1-11



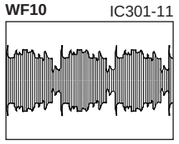
REC/PB 0.48 Vp-p
10 mV/5 µsec/DIV

WF9 IC1-18



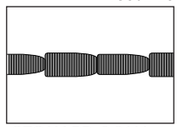
REC 1.0 Vp-p
20 mV/5 µsec/DIV

WF10 IC301-11



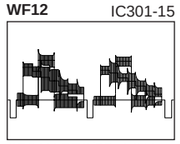
SECAM REC 0.44 Vp-p
10 mV/20 µsec/DIV

WF11 IC301-13



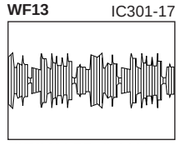
SECAM PB 0.24 Vp-p
20 mV/2 msec/DIV

WF12 IC301-15



SECAM REC/PB 1.3 Vp-p
50 mV/20 µsec/DIV

WF13 IC301-17

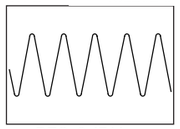


SECAM PB 0.44 Vp-p
10 mV/20 µsec/DIV

***WF10 - WF13 is used only for HR-J695MS/J795MS.**

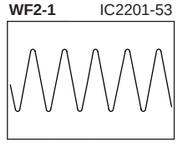
< AUDIO >

WF1 IC2201-9



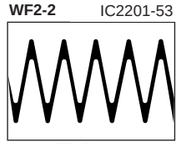
REC 0.47 Vp-p
10 mV/0.2 msec/DIV

WF2-1 IC2201-53



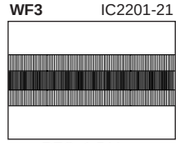
REC 5 Vp-p
0.1 V/0.2 msec/DIV

WF2-2 IC2201-53



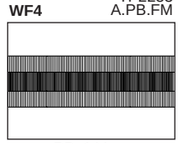
PB 5 Vp-p
0.1 V/0.2 msec/DIV

WF3 IC2201-21



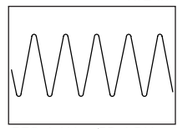
REC 1.5 Vp-p
50 mV/2 msec/DIV

WF4 TP2253 A.PB.FM



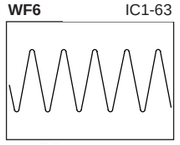
PB 1 Vp-p
20 mV/0.5 msec/DIV

WF5 IC1-53



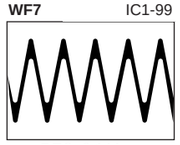
REC 1.4 Vp-p/PB 1.5 Vp-p
20 mV/0.2 msec/DIV

WF6 IC1-63



REC 0.2 Vp-p
5 mV/0.2 msec/DIV

WF7 IC1-99



REC 2.1 Vp-p
50 mV/0.2 msec/DIV

4.16 VOLTAGE CHARTS

<MAIN>

MODE / PIN NO.	REC	PLAY
IC1		
1	1.5	2.3
2	2.8	2.8
3	2.6	2.6
4	1.9	1.5
5	1.9	1.5
6	2.4	2.1
7	1.4	0.8
8	0	0
9	2.6	3.1
10	2.3	2.3
11	3.1	3.1
12	2.8	2.8
13	3.1	3.1
14	2.3	2.3
15	0	0
16	2.8	2.8
17	1.4	1.4
18	2.8	2.8
19	2.8	2.8
20	2.8	2.8
21	2.0	2.0
22	2.8	2.8
23	2.8	2.8
24	5.0	5.0
25	0.4	0.4
26	0	0
27	2.3	2.3
28	2.3	2.3
29	1.9	1.9
30	2.1	2.1
31	0	0
32	2.5	2.5
33	5.0	5.0
34	2.7	2.3
35	5.0	5.0
36	2.5	0
37	2.3	2.3
38	-	-
39	1.2	1.2
40	-	-
41	2.5	2.5
42	-	-
43	0	0
44	2.2	2.2
45	4.6	4.6
46	4.9	4.6
47	2.9	2.9
48	2.6	2.6
49	5.0	5.0
50	2.5	2.5
51	2.8	2.8
52	0	0
53	2.6	2.6
54	0	0
55	0	0
56	0	0
57	0	0
58	0	0
59	0	0
60	0	0
61	0	0
62	0	0
63	0	0
64	0	0
65	2	2
66	0	0
67	0	0
68	0	0
69	0	0
70	0	0
71	0	0
72	0	0
73	3.1	3.1
74	0	0
75	0	0
76	0	0
77	0	0
78	0	0
79	5.0	5.0
80	5.0	5.0
81	0	0
82	0	0
83	0	0
84	2.2	2.2
85	2.4	2.4
86	2.2	2.2
87	5.0	5.0
88	0	0
89	0	0
90	0	0
91	0	4.0
92	2.6	2.6
93	0.8	0.5
94	0	0
95	2.5	2.5
96	2.5	2.5
97	2.5	2.5
98	0	0
99	2.5	2.5
100	0	0

MODE / PIN NO.	REC	PLAY
IC251		
1	0	0
2	2.6	2.6
3	5.0	5.0
4	5.0	5.0
5	0	0.7
6	4.0	4.0
7	4.1	4.0
8	5.0	5.0
9	4.6	4.6
10	0	0
11	3.0	3.0
12	3.0	3.0
13	1.2	1.2
14	0.4	0.4
15	5.0	5.0
16	2.9	2.9
17	2.5	2.5
18	4.6	4.6
19	5.0	5.0
20	4.9	4.9
21	0	0
22	3.5	3.6
23	0	5.0
24	5.0	5.0
IC301[HR-J695MS/J795MS]		
1	0.2	0.2
2	1.9	1.9
3	3.8	3.8
4	0.4	0.4
5	0	0
6	3.1	3.1
7	0	0
8	2.4	2.4
9	2.4	2.4
10	2.2	2.2
11	2.4	0
12	4.4	4.4
13	2.4	2.4
14	3	1.9
15	2.7	2.7
16	0.3	4.9
17	0.2	2.5
18	2.2	2.2
19	2.3	2.3
20	2.4	2.4
21	2.4	2.4
22	4.8	4.8
23	3.1	3.1
24	3.1	3.1
25	2.7	2.7
26	0	0
27	0.4	0.4
28	0.3	0.3
IC2201		
1	2.3	2.3
2	0	0
3	2.3	2.3
4	0	0
5	0	0
6	2.4	2.4
7	2.0	2.0
8	0	0
9	0	0
10	0	0
11	0	0
12	2.0	2.0
13	0	0
14	0	0
15	0	0
16	2.4	2.4
17	0.5	0.5
18	2.4	2.4
19	2.4	2.4
20	2.4	2.4
21	2.4	0
22	2.5	0.7
23	0	0
24	2.5	0.7
25	4.8	4.8
26	2.5	0
27	0	-
28	4.1	2.8
29	4.3	1.7
30	4.4	1.6
31	1.1	1.8
32	2.4	2.4
33	2.4	2.4
34	0.8	0.8
35	2.4	2.4
36	0	0.2
37	1.6	1.6
38	0	0
39	0	0
40	4.8	4.8
41	0	0
42	4.8	0
43	4.7	4.7
44	3.3	3.3
45	0	0
46	4.7	4.7

MODE / PIN NO.	REC	PLAY
47	2.4	2.4
48	2.4	2.4
49	0.4	0.4
50	0.2	0.2
51	0	0
52	0	0
53	4.3	4.3
54	0	0
55	0	0
56	0	0
57	4.4	4.4
58	9.6	9.6
59	4.4	0
60	0.8	0.8
61	2.4	2.4
62	2.4	2.4
63	4.2	4.2
64	4.3	4.3
IC3001		
1	0	0
2	2.8	2.9
3	3.3	2.8
4	2.1	2.9
5	2.8	2.9
6	0	0.9
7	2.9	3.0
8	2.7	2.8
9	1.5	1.6
10	5.7	5.8
11	2.1	2.1
12	2.2	2.2
13	2.6	2.7
14	0.4	0.4
15	1.0	1.0
16	3.1	3.2
17	2.7	2.8
18	5.8	6.0
19	2.7	2.8
20	0	0
21	0	0
22	2.9	3.0
23	0	0
24	5.3	5.3
25	4.5	4.6
26	0	2.6
27	0	0
28	5.8	5.8
29	0	0
30	5.7	5.9
31	5.5	5.5
32	4.9	2.9
33	5.6	5.9
34	0	0
35	0	0
36	5.6	5.8
37	2.7	2.9
38	5.6	5.8
39	5.7	5.9
40	5.7	5.9
41	5.7	5.9
42	2.8	2.5
43	0	0
44	2.9	3.0
45	0	0
46	0	0
47	1.1	1.1
48	1.1	1.1
49	1.0	0
50	2.2	0
51	1.0	0
52	1.0	5.6
53	0	0
54	5.5	5.6
55	0	0
56	5.6	0
57	0	0
58	0	4.6
59	4.5	4.8
60	0	4.6
61	5.6	5.6
62	5.6	5.6
63	0	4.6
64	0	0
65	2.3	4.5
66	4.5	4.6
67	0	0
68	0	0
69	0	0
70	5.8	5.9
71	5.0	5.1
72	5.8	5.9
73	0	0
74	0	0
75	1.6	1.7
76	1.6	1.6
77	5.8	5.9
78	2.7	2.9
79	0	0
80	2.8	2.8
81	3.7	3.7
82	5.7	5.7

MODE / PIN NO.	REC	PLAY
83	5.6	5.6
84	5.5	5.6
85	0	3.2
86	5.7	5.9
87	0	0
88	0	0
89	0	0
90	0	5.6
91	0	0
92	5.3	5.3
93	5.5	0
94	0	0
95	5.5	5.8
96	5.6	0
97	0	5.8
98	5.5	5.6
99	0	0
100	5.6	0
101	5.6	0
102	0	0
103	5.6	5.7
104	1.5	1.5
105	2.8	2.8
106	0	2.8
107	0	0
108	3.0	3.0
109	0	0
110	0	0
111	0.4	0
112	5.6	5.7
IC3002		
1	4.9	4.9
2	4.9	4.9
3	0	0
4	0	0
IC3003		
1	0	0
2	0	0
3	0	0
4	0	0
5	4.8	4.8
6	4.9	4.9
7	0	0
8	5.1	5.1
IC6701		
1	4.3	4.3
2	1.5	1.5
3	1.5	1.5
4	0	0
5	2.0	2.0
6	1.9	1.9
7	0.2	0.2
8	0	0
9	0	0
10	3.6	3.6
11	3.6	3.6
12	4.5	4.5
13	4.5	4.5
14	2.2	2.2
15	2.1	2.1
16	0	0
17	0.3	0.3
18	0.3	0.3
19	4.5	4.5
20	0	0
21	0.3	0.3
22	4.7	4.7
23	0	0
24	0	0
25	0	0
26	0	0
27	0	0
28	0	0
29	0	0
30	2.4	2.4
31	2.4	2.4
32	0	0
33	4.7	4.7
34	3.8	3.8
35	0	0
36	2.4	2.4
37	0	0
38	0	0
39	0	0
40	0	0
41	0	0
42	2.5	2.5
43	2.4	2.4
44	0	0
IC7002		
1	0	5.1
2	0	5.0
3	0	0
IC7102		
1	0	0
2	4.0	4.0
3	12.8	12.8
4	3.6	3.1
5	0	0
6	3.2	4.5

MODE / PIN NO.	REC	PLAY
IC7103		
1	5.3	5.4
2	4.0	3.9
3	12.8	12.8
4	3.6	3.6
5	0	0
6	3.2	3.1
CN1		
1	0	0
2	0	0
3	0	0
4	2.7	2.6
5	2.7	2.6
6	2.7	2.6
7	2.9	0
8	2.9	0
9	2.9	0
CN2001		
1	0	0
2	0	0
3	0	0
4	0	0
5	2.6	2.9
6	2.9	2.8
CN2002		
1	0	0
2	0	0
CN3001		
1	2.6	2.7
2	13.5	13.5
3	6.0	6.0
4	0	0
5	0	8.0
6	0	0
7	0	0
8	13.3	13.3
9	3.0	3.1
10	3.0	3.0
11	1.5	1.5
12	3.0	3.1
CN5001	-	-
CN7001		
1	5.6	5.8
2	0	0
3	5.8	0
4	5.8	5.8
CN7102		
1	0	0
2	0	0
CN7105		
1	0	0
2	0	0

<ADV.JOG>[HR-J790EUIJ795EK/J795MS]

MODE / PIN NO.	REC	PLAY
CN7003		
1	5.8	5.8
2	5.8	0
3	0	0
4	5.6	5.8

<R.PAUSE>[HR-J790EUIJ795MS]

MODE / PIN NO.	REC	PLAY
CN7104		
1	0	0
2	0	0

<SAT_STL>

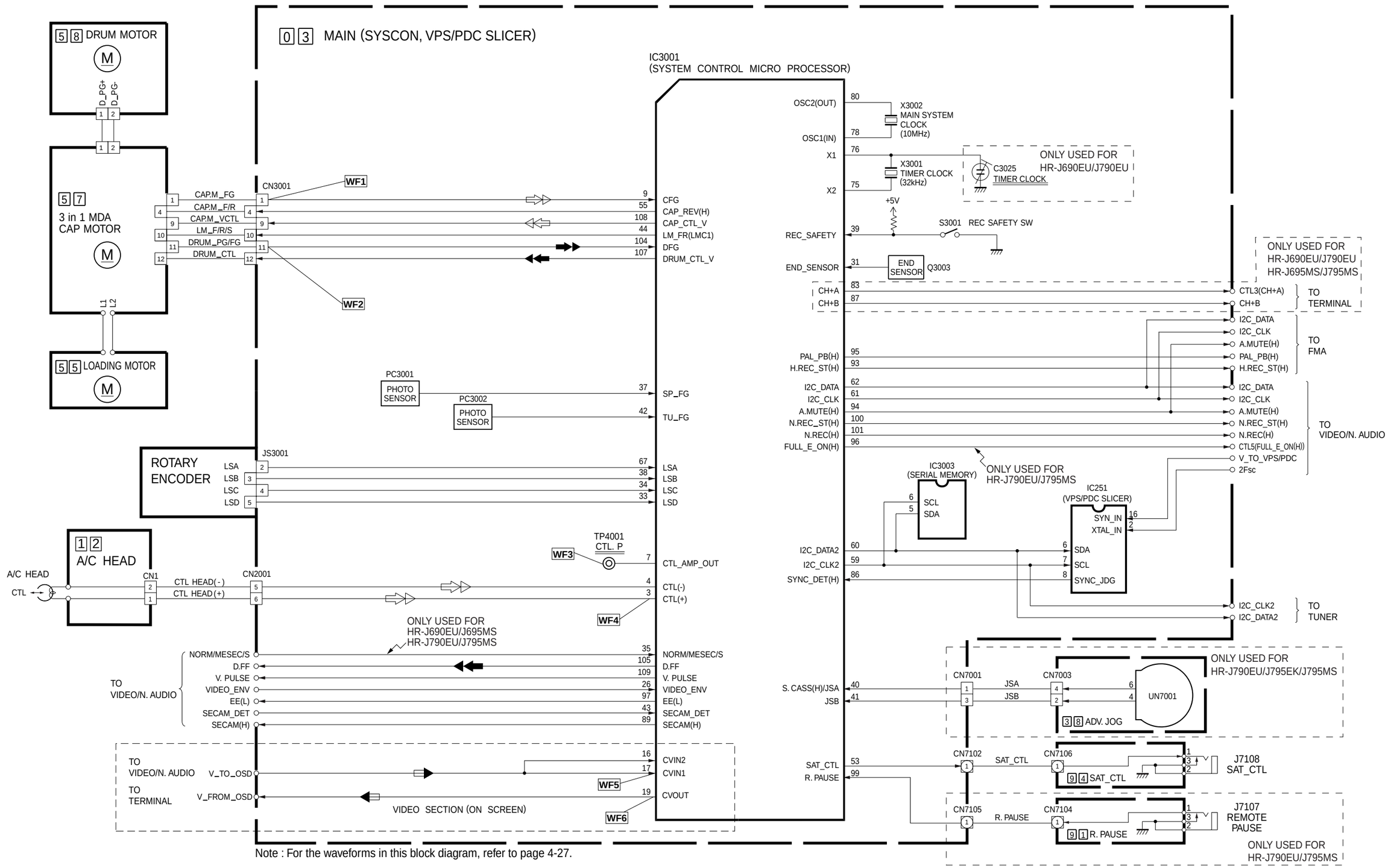
MODE / PIN NO.	REC	PLAY
CN7106		
1	0	0
2	0	0

4.17 CPU PIN FUNCTION

<SYSCON IC3001>

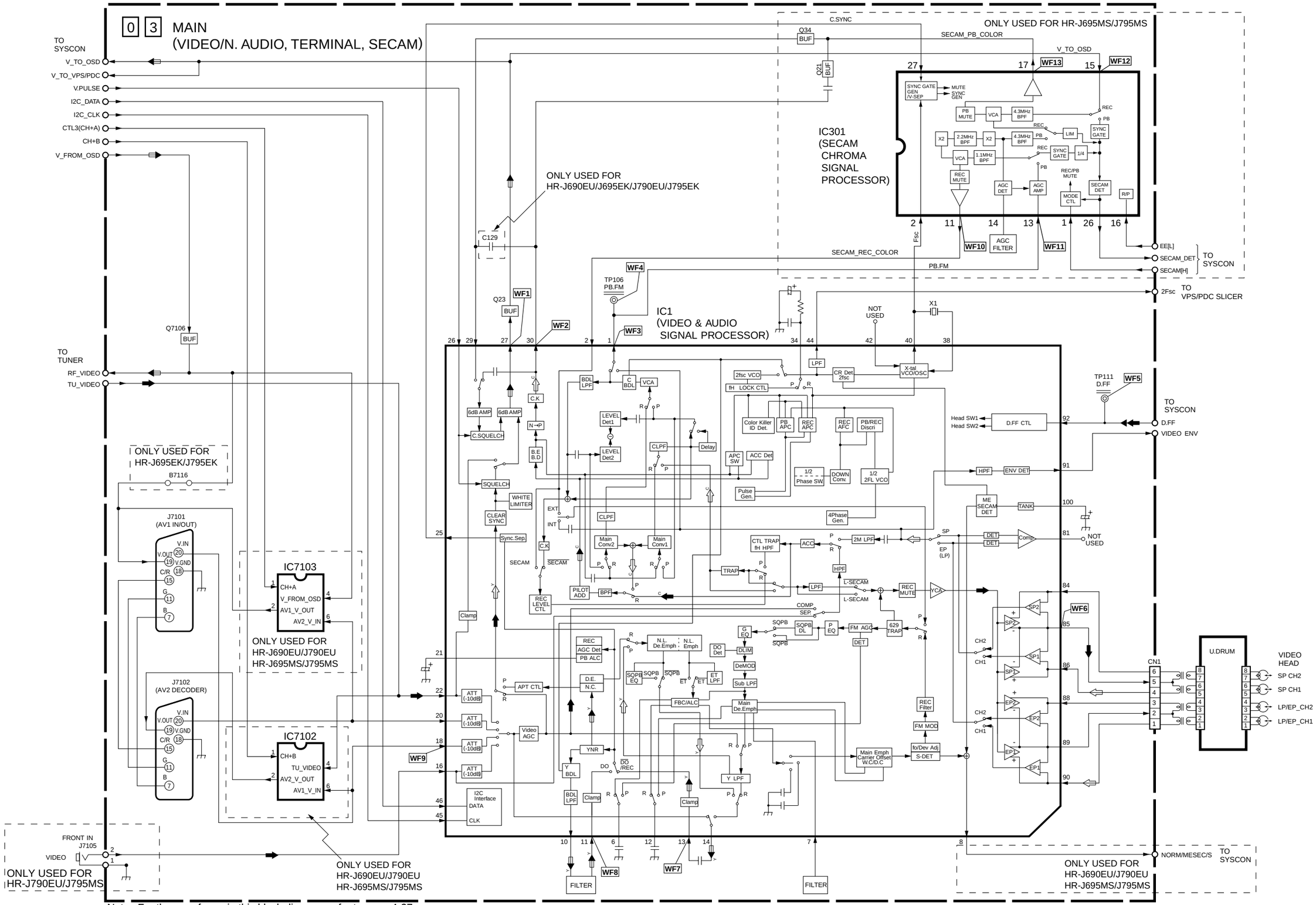
PIN NO.	LABEL	IN/OUT	FUNCTION
1	SVSS	-	GND
2	CTLREF	-	CTL REFERENCE VOLTAGE
3	CTL(+)	IN/OUT	CTL(+) SIGNAL
4	CTL(-)	IN/OUT	CTL(-) SIGNAL
5	CTLBIAS	-	CTL BIAS VOLTAGE
6	CTLAMPOUT	OUT	CTL PULSE OUTPUT
7	CTLFB	IN	CTL PULSE FEEDBACK
8	CTLSMTIN	IN	CTL PULSE INPUT
9	CFG	IN	CAPSTAN FG PULSE INPUT
10	SVCC	-	SYSTEM POWER
11	AFCPC	OUT	AFC CLOCK (SYNC SEPARATOR FOR OSD / EXTERNAL CIRCUIT FOR AFC)
12	AFCOSC	OUT	AFC CLOCK (SYNC SEPARATOR FOR OSD / EXTERNAL CIRCUIT FOR AFC)
13	AFCLPF	IN	FILTER OUTPUT FOR HORIZONTAL SYNCHRONIZING OF OSD CHARACTER
14	CSYNC/HSYNC	IN	COMPOSITE SYNC/HORIZONTAL SYNC
15	VLPF/VSYNC	-	NC
16	CVIN1	IN	COMPOSITE VIDEO SIGNAL INPUT(1)
17	CVIN2	IN	COMPOSITE VIDEO SIGNAL INPUT(2)
18	OVCC	-	SYSTEM POWER
19	CVOUT	OUT	COMPOSITE VIDEO SIGNAL OUTPUT
20	OVSS	-	GND
21	FSCOUT	OUT	FSC OUTPUT FOR OSD
22	FSCIN	IN	FSC INPUT FOR OSD
23	AVSS	-	GND FOR ANALOG CIRCUIT
24	AFC	IN	TUNING CLOCK
25	RF AGC	IN	CHANGES IN ATS+IC OUTPUT AS CAUSED BY CHANGES IN RECEIVER SENSITIVITY WHEN THE SAME CHANNEL IS RECEIVED MORE THAN ONCE ARE INPUT.
26	VIDEO_ENV	IN	AUTO TRACKING DETECT/INPUT THE AVERAGE OF PLAYBACK VIDEO SIGNAL
27	SCR(H)	IN	SCRAMBLE CONTROL INPUT (SCRAMBLE:H)
28	KEY2	IN	OPERATION CONTROL SIGNAL
29	START_SENSOR	IN	START SENSOR
30	KEY1	IN	OPERATION CONTROL SIGNAL
31	END_SENSOR	IN	END SENSOR
32	A.ENV/ND(L)	IN	AUDIO PB FM ENV.INPUT/NON HiFi MODE:L
33	LSD	-	MECHANISM MODE DETECT(D)
34	LSC	-	MECHANISM MODE DETECT(C)
35	NORM/MESEC/S	IN	NORMAL MODE:L/MESECAM MODE:M/S VHS MODE:H
36	AVCC	-	SYSTEM POWER FOR ANALOG CIRCUIT
37	SP_FG	IN	DETECTION SIGNAL FOR SUPPLY REEL ROTATION/TAPE REMAIN
38	LSB	-	MECHANISM MODE DETECT(B)
39	REC_SAFETY	IN	REC SAFETY SWITCH DETECT (SW ON:L)
40	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
41	S.CASS[H]/JSA	IN	DETECTION SIGNAL FOR SVHS CASSETTE (SVHS:H) /INPUT FOR THE JOG SHUTTLE
42	TU_FG	IN	DETECTION SIGNAL FOR TAKE-UP REEL ROTATION/TAPE REMAIN
43	SECAM_DET(H)	IN	DETECTION SIGNAL FOR SECAM ON P.B MODE (SECAM:H)
44	LM_FR(LMC1)	OUT	LOADING MOTOR DRIVE
45	PB_CTL2	OUT	PARALLEL CONTROLLER FOR CH+ IC (IN/OUT SWITCH)
46	D_A	OUT	LED DRIVE
47	D_B	OUT	LED DRIVE
48	D_C	OUT	LED DRIVE
49	D_D	OUT	LED DRIVE
50	D_E	OUT	LED DRIVE
51	D_F	OUT	LED DRIVE
52	D_G	OUT	LED DRIVE
53	SAT_CTL	OUT	CONTROL SIGNAL FOR SATELLITE RECEIVER
54	P.CTL(H)	OUT	CONTROL SIGNAL FOR SWITCHING POWER SUPPLY
55	CAP_REV(H)	OUT	CAPSTAN MOTOR REVERSE CONTROL (REV:H)
56	VCC	-	SYSTEM POWER
57	VCC	-	SYSTEM POWER
58	DIG5	OUT	LED DRIVE
59	I2C_CLK2	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
60	I2C_DATA2	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR MEMORY IC
61	I2C_CLK	OUT	SERIAL DATA TRANSFER CLOCK FOR MEMORY IC
62	I2C_DATA	IN/OUT	SERIAL DATA TRANSFER OUTPUT FOR MEMORY IC
63	DIG4	OUT	LED DRIVE
64	DIG3	OUT	LED DRIVE
65	DIG2	OUT	LED DRIVE
66	DIG1	OUT	LED DRIVE
67	LSA	IN	MECHANISM MODE DETECT(A)
68	P50_OUT/ET_REC(H)	OUT	CONTROL SIGNAL FOR TV LINK/ET REC MODE:H
69	POWER_DET	IN	DETECTION SIGNAL FOR POWER DOWN OF AC POWER SUPPLY
70	P50_IN/VHS(H)	OUT	CONTROL SIGNAL FOR TV LINK/VHS MODE(H)
71	PROTECT	IN	DETECTION SIGNAL FOR SW POWER SUPPLY
72	RC	IN	REMOTE CONTROL DATA INPUT
73	SW2/CH_SW	IN	TUNER SYSTEM MODE:L /CHANNEL SWITCHING SIGNAL
74	FWE	OUT	FLASH WRITE ENABLE
75	X2	-	TIMER CLOCK (32.768KHz)
76	X1	-	TIMER CLOCK (32.768KHz)
77	$\overline{RES}$	-	RESET TERMINAL
78	OSC1(IN)	-	MAIN SYSTEM CLOCK(10MHz)
79	VSS	-	GND
80	OSC2(OUT)	-	MAIN SYSTEM CLOCK(10MHz)
81	VCL	-	SYSTEM POWER
82	MODE	-	NC
83	CH+A/CONV_CTL	OUT	AV1 OUTPUT SWITCH CONTROL / R/F CONVERTER ON/OFF CONTROL
84	TU_A_MUTE(H)	OUT	TUNER AUDIO MUTE CONTROL (MUTE:H)
85	SB_GAIN	OUT	VOLTAGE CONTROL SIGNAL FOR VIDEO FREQUENCY RESPONSE
86	SYNC_DET(H)/P.MUTE(L)	IN/OUT	DETECTION OF VIDEO SYNC SIGNAL (DETECTED:H)/ PICTURE CONTROL (MUTE:L)
87	CH+B	OUT	AV2 OUTPUT SWITCH CONTROL
88	MESECAM(H)	OUT	MESECAM:H
89	SECAM(H)	OUT	COLOUR SYSTEM SECAM:H
90	PB_CTL1	OUT	PARALLEL CONTROLLER FOR CH+ IC (IN/OUT SWITCH)
91	SP_SHORT(H)	OUT	MODE SELECT
92	LP/EP_SHORT(H)	OUT	MODE SELECT
93	H.REC_ST(H)	OUT	HIFI AUDIO SOUND RECORDING START
94	A.MUTE(H)	OUT	AUDIO MUTE CONTROL (MUTE:H)
95	PAL_PB(H)	OUT	PLAYBACK MODE FOR PAL:H
96	FULL_E_ON(H)/YCO	IN	FULL ERASE ON:H
97	Y/C_OUT/EE(L)	-	Y/C OUT[H]/EE:L
98	N.REC_ST(H)	OUT	NORMAL AUDIO SOUND RECORDING START
99	TU_V_MUTE(H)	OUT	TUNER VIDEO CONTROL (MUTE:H)
100	N.REC_ST(H)	OUT	NORMAL AUDIO SOUND RECORDING START
101	CAPPWM	OUT	CAPSTAN MOTOR CONTROL
102	AGC_CTL/SW1	IN	AGC CONTROL INPUT/TUNER SYSTEM MODE:H
103	CTL GAIN	OUT	CONTROL AMP OUT FREQUENCY RESPONSE SWITCHING
104	DFG	IN	DRUM FG PULSE INPUT
105	D.FF	OUT	ROTATION DETECTION SIGNAL FOR DRUM MOTOR/TIMING CONTROL SIGNAL FOR REC
106	A.FF	OUT	AUDIO FF OUTPUT
107	CAP_CTL_V	OUT	CAPSTAN MOTOR CONTROL
108	DRUM_CTL_V	OUT	DRUM MOTOR CONTROL
109	V.PULSE	OUT	V.PULSE ADDITION TIMING CONTROL
110	VSS	-	GND
111	C.SYNC	IN	COMPOSITE SYNC
112	VCC	-	SYSTEM POWER

4.18 SYSTEM CONTROL BLOCK DIAGRAM



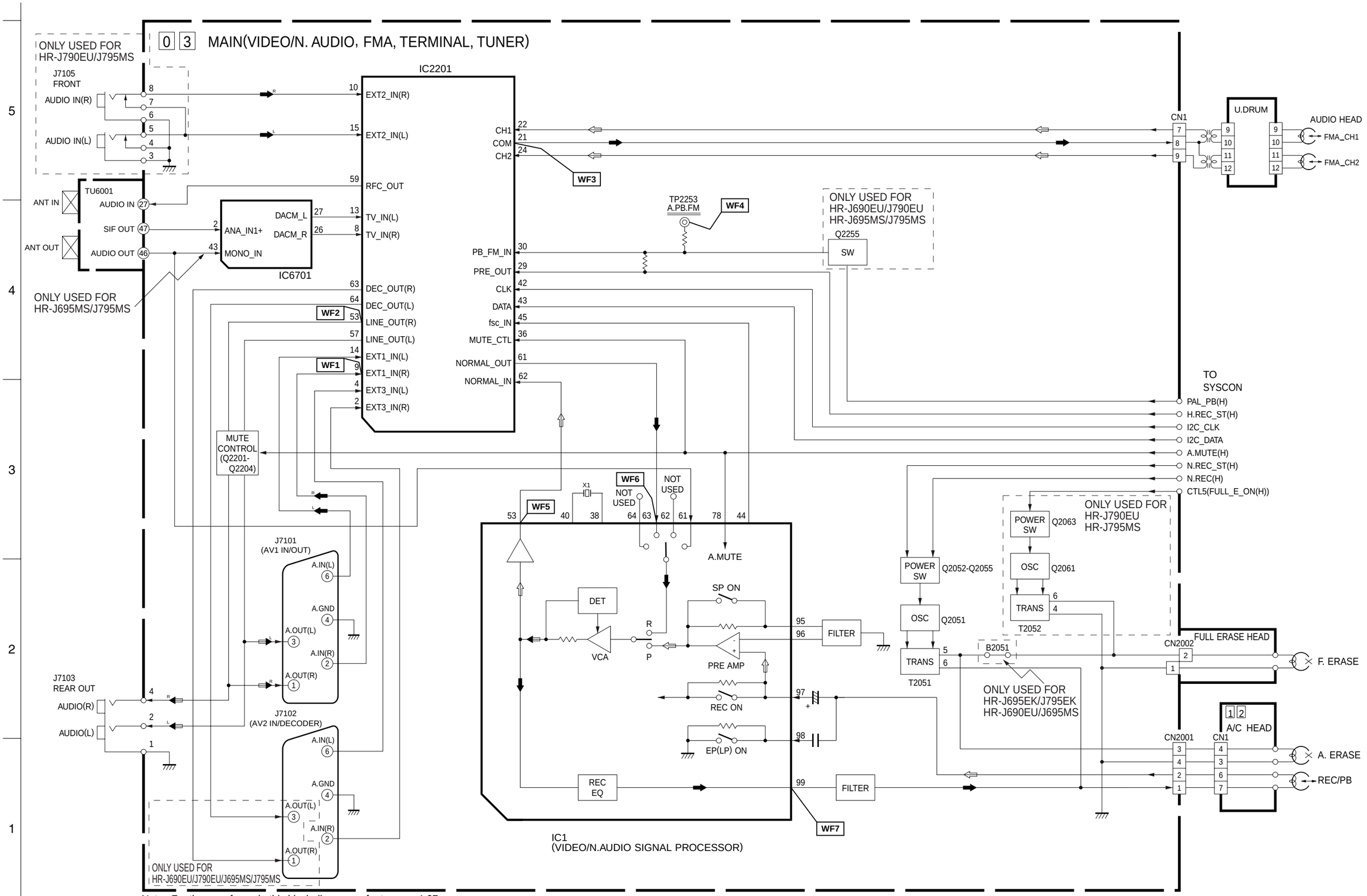
Note : For the waveforms in this block diagram, refer to page 4-27.

4.19 VIDEO BLOCK DIAGRAM



Note : For the waveforms in this block diagram, refer to page 4-27.

4.20 AUDIO BLOCK DIAGRAM



Note : For the waveforms in this block diagram, refer to page 4-27.